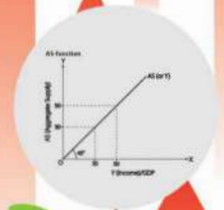
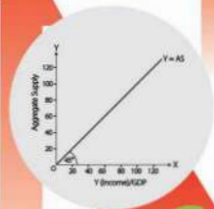


Introductory Macroeconomics

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Class XII



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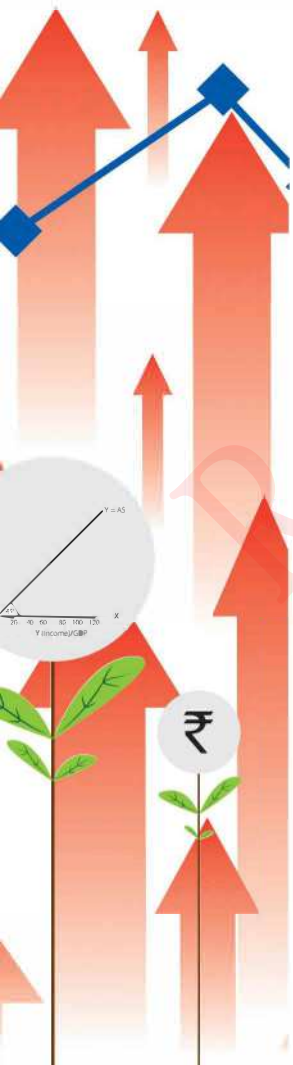
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Syllabus

Central Board of Secondary Education, Delhi

Economics

Class–XII

Paper One

3 Hours

Theory: 80 Marks

Project: 20 Marks

Units

Periods Marks

Part–A: Introductory Macroeconomics

1. National Income and Related Aggregates	28	10
2. Money and Banking	15	06
3. Determination of Income and Employment	27	12
4. Government Budget and the Economy	15	06
5. Balance of Payments	15	06
	100	40

Part–B: Indian Economic Development

6. Development Experience (1947-90) and Economic Reforms since 1991	28	12
7. Current Challenges facing Indian Economy	60	22
8. Development Experience of India– A Comparison with Neighbours	12	06
	100	40

Part–C: Project Work

20 20

PART–A: INTRODUCTORY MACROECONOMICS

Unit–1: National Income and Related Aggregates

(28 Periods)

What is Macroeconomics?

Basic concepts in macroeconomics: consumption goods, capital goods, final goods, intermediate goods; stocks and flows; gross investment and depreciation.

Circular flow of income (two sector model); Methods of calculating National Income—Value Added or Product method, Expenditure method, Income method.

Aggregates related to National Income:

Gross National Product (GNP), Net National Product (NNP), Gross and Net



Domestic Product (GDP and NDP)—at market price, at factor cost; Real and Nominal GDP.

GDP and Welfare.

Unit-2: Money and Banking

(15 Periods)

Money—meaning and supply of money—Currency held by the public and net demand deposits held by commercial banks.

Money creation by the commercial banking system.

Central bank and its functions (example of the Reserve Bank of India): Bank of issue, Government Bank, Banker's Bank, Control of Credit through Bank Rate, CRR, SLR, Repo Rate and Reverse Repo Rate, Open Market Operations, Margin requirement.

Unit-3: Determination of Income and Employment

(27 Periods)

Aggregate demand and its components.

Propensity to consume and propensity to save (average and marginal).

Short-run equilibrium output; investment multiplier and its mechanism.

Meaning of full employment and involuntary unemployment.

Problems of excess demand and deficient demand; measures to correct them—changes in government spending, taxes and money supply.

Unit-4: Government Budget and the Economy

(15 Periods)

Government budget—meaning, objectives and components.

Classification of receipts—revenue receipts and capital receipts; classification of expenditure—revenue expenditure and capital expenditure.

Measures of government deficit—revenue deficit, fiscal deficit, primary deficit—their meaning.

Unit-5: Balance of Payments

(15 Periods)

Balance of payments account—meaning and components; balance of payments deficit—meaning.

Foreign exchange rate—meaning of fixed and flexible rates and managed floating.

Determination of exchange rate in a free market.



PART-B: INDIAN ECONOMIC DEVELOPMENT

Unit-6: Development Experience (1947-90) and

Economic Reforms since 1991

(28 Periods)

A brief introduction of the state of Indian economy on the eve of independence.

Common goals of Five Year Plans.

Main features, problems and policies of agriculture (institutional aspects and new agricultural strategy, etc.), industry (industrial licensing, etc.) and foreign trade.

Economic Reforms since 1991:

Features and appraisals of liberalisation, globalisation and privatisation (LPG policy); Concepts of demonetization and GST.

Unit-7: Current Challenges facing Indian Economy

(60 Periods)

Poverty—absolute and relative; Main programmes for poverty alleviation: A critical assessment.

Rural Development: Key issues—credit and marketing—role of cooperatives; agricultural diversification; alternative farming—organic farming.

Human Capital Formation: How people become resource; Role of human capital in economic development; Growth of Education Sector in India.

Employment: Formal and informal growth; problems and policies.

Infrastructure: Meaning and Types: Case Studies: Energy and Health: Problems and Policies—A critical assessment.

Sustainable Economic Development: Meaning, Effects of Economic Development on Resources and Environment, including global warming.

Unit-8: Development Experience of India—

A Comparison with Neighbours

(12 Periods)

India and Pakistan

India and China

Issues: growth, population, sectoral development and other Human Development Indicators.



Design of Question Paper

Central Board of Secondary Education, Delhi

Economics

Class XII

Duration: 3 Hours

Theory: 80 Marks

Project: 20 Marks

S. No.	Typology of Questions	Objective Type/MCQ 1 Mark	Short Answer I 3 Marks	Short Answer II 4 Marks	Long Answer 6 Marks	Marks
1.	Remembering: Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers.	5	1	2	1	22
2.	Understanding: Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas.	5	1	2	1	22
3.	Applying: Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way.	5	1	1	1	18
4.	Analysing and Evaluating: Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations. Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria. Creating: Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions.	5	1	1	1	18
Total		$20 \times 1 = 20$	$4 \times 3 = 12$	$6 \times 4 = 24$	$4 \times 6 = 24$	80 (34)

Note: There will be **Internal Choices** in questions of 1 mark, 3 marks, 4 marks and 6 marks in both sections (A & B). In all, total 8 internal choices.





INTRODUCTORY MACROECONOMICS

INTRODUCTION

TO
DO

- *Meaning of Macroeconomics*
- *How Macroeconomics Differs from Microeconomics?*
- *Scope and Significance of Macroeconomics*

I. MEANING OF MACROECONOMICS

The term **Macro** in English has its origin in the Greek term **Makros** which means Large. In the context of macroeconomics, 'large' means economy as a whole. Thus, **macroeconomics is defined as that branch of economics which studies economic issues or economic problems at the level of an economy as a whole.** It studies such economic questions that concern the welfare of all residents of a country. These questions are like of employment for the residents, growth of output in the economy, the problem of price rise (called inflation) or the problem of depression (lack of demand for goods and services across different sectors of the economy) and so on. Macroeconomics also studies how government can improve the state of economy of a country.

In the words of M.H. Spencer, "Macroeconomics is concerned with the economy as a whole or large segments of it. In macroeconomics, attention is focused on such problems as the level of unemployment, the rate of inflation, the nation's total output and other matters of economy-wide significance."

2. HOW MACROECONOMICS DIFFERS FROM MICROECONOMICS?

You have already studied **microeconomics** at +1 level. Now that you have understood the meaning of macroeconomics, you can draw a distinction between micro and macro economics, as under:

(1) Basis of the Study

Microeconomics studies problems of scarcity and choice at the level of an individual, a household, a firm or an industry.

Macroeconomics studies problems of scarcity and choice at the level of an economy as a whole.

Illustration

Microeconomics studies how a consumer exercises his choice of goods and services so that he maximises his satisfaction with a given income.

Macroeconomics studies how the national resources are used (for the production of defence goods or consumer goods) so that the welfare of all the residents is maximised.

(2) Economic Variables

Microeconomics uses microeconomic variables such as consumer's demand or producer's supply.

Macroeconomics, on the other hand, uses macroeconomic variables such as **aggregate demand** (referring to demand for all the goods and services in the economy) and **aggregate supply** (referring to supply of all the goods and services in the economy).

(3) Economic Agents

Economic agents refer to the individuals and institutions who take economic decisions. Individual economic agents include consumers and producers. They focus on the maximisation of personal gains. Institutional economic units include state or statutory bodies [like RBI (Reserve Bank of India), SEBI (Securities and Exchange Board of India) and TRAI (Telecom Regulatory Authority of India)]. They focus on the maximisation of social welfare. At the micro level, economic decisions are taken largely by the individual economic agents, while at the macro level institutional agents play a significant role.

(4) Degree of Aggregation

In microeconomics, there is a **limited degree of aggregation** of economic variables, compared to macroeconomics.

Illustration

Microeconomics studies equilibrium of an industry; it is an aggregation of all the firms producing a particular commodity.

Macroeconomics studies equilibrium of the economy as a whole; it is an aggregation of all economic units in the economy.

Macroeconomic Variables

Macroeconomic variables are those economic variables which are studied at the level of economy as a whole. These variables are important components of the subject matter of macroeconomics.

The important ones are:

- Level of employment in the economy,
- National income,
- Aggregate demand,
- Aggregate supply,
- Consumption expenditure in the economy, and
- Investment expenditure in the economy.

However, important it is to note that with a view to examine structural change in the economy, macroeconomics also studies the level of economic activity in agricultural sector, industrial sector and services sector, separately.

(5) Different Set of Assumptions

Microeconomics and macroeconomics are based on a different set of assumptions. Certain variables are assumed to be constant in microeconomics, whereas they are assumed to be changing in macro; similarly, certain variables that are assumed to be constant in macro are assumed to be changing in microeconomics.

Illustration

In microeconomics, total output and employment are taken as constant while these are important variables in macroeconomics.

In macroeconomics, distribution of output/income is taken as constant, while it is an important variable in microeconomics.

(6) Central Issue

Allocation of resources is the central issue in microeconomics. Determination of the overall level of output (and employment) is the central issue in macroeconomics.

(7) Method of Study

Method of study in macroeconomics is often described as 'general equilibrium analysis'. On the other hand, method of study in microeconomics is often described as 'partial equilibrium analysis'.

HOTS

Q. Distinguish between partial equilibrium and general equilibrium.

Ans. Partial equilibrium refers to equilibrium in one market (say, commodity market) on the assumption that there is no change in other markets (like labour market or capital market). General equilibrium refers to simultaneous equilibrium in all the markets in the economy. Partial equilibrium is the method of study in microeconomics. General equilibrium is the method of study in macroeconomics.

(8) Micro-Macro Paradox

What is logical at the micro level may not be logical at the macro level.

Illustration

- If an individual saves more, he adds to his future prosperity.

- If all the people in an economy save more (and spend less), demand for goods and services may decline. Consequently, investment may decline; production and employment level may fall. The economy will be driven towards future poverty rather than prosperity.

HOTS

Q. Is saving a virtue or a vice?

Ans. From the viewpoint of an individual, saving is a virtue. He can deposit his savings in a bank and can earn a regular income. But, from the viewpoint of the economy as a whole, saving may prove to be a vice. When everybody saves more, expenditure tends to decline. It causes a decline in aggregate demand. A fall in aggregate demand causes a fall in investment. Implying a fall in production and a fall in the level of employment. The economy may be driven into the state of depression.

3. SCOPE AND SIGNIFICANCE OF MACROECONOMICS

Scope

Scope of macroeconomics refers to the field of study (or area of study) of macroeconomics. It includes the following leading issues (in accordance with the CBSE syllabus for the +2 graders):

(1) Estimation of National income and Related Aggregates:

Macroeconomics starts with the concept of national income. It deals with the definition and estimation of national income and its related aggregates like GDP (Gross Domestic Product) and NDP (Net Domestic Product).

(2) Theory of Employment: Macroeconomics studies the theories related to employment (or unemployment) in the economy. **Keynesian** theory of employment is of notable significance in this context. It explains the causes of unemployment, and suggests the possible remedies to combat it.

(3) Theory of Money: Creation of money (or creation of credit) by the commercial banks is an important component of macroeconomics. Linked to it, is the role of Central Bank of a country (RBI in India) in regulating the supply of money in the economy.

(4) Theory of General Price Level–Inflationary and Deflationary Gaps: This is yet another significant component of macroeconomics. It reveals the trend path of the general price level leading to inflationary and deflationary gaps in the economy.

(5) Role of the Government (or Government Budget): Macroeconomics studies how government budget impacts the level of economic activity in the economy.

- (6) **Exchange Rate and Balance of Payments:** Determination of exchange rate and the way it is managed (in the international money market) is an important element of the scope of macroeconomics.

Briefly, as a specialised branch of economics, macroeconomics focuses on such issues which explain (i) how an economy functions, and (ii) how can it be managed (or regulated), so that social welfare is maximised.

Significance

The following observations highlight the significance of macroeconomics:

- (1) **Description of the Economy:** Macroeconomics offers a deep description of the economy.
 - Estimation of national income (across different sectors) reveals the nature and level of economic activity in the economy.
 - Study of unemployment reveals the magnitude of the problem and the way it can be handled.
 - Government budget reveals the way economy is regulated by the government.
- (2) **Roadmap of Growth and Development:** Macroeconomics offers a roadmap of growth and development. Programmes and policies of economic growth are drawn by assessing the needs and means of the economy.
- (3) **Economic Stability:** Study of macroeconomics helps achieve economic stability. This is achieved through appropriate monetary policy (pursued by the Central Bank of the country) and fiscal policy/budgetary policy (pursued by the government).
- (4) **BoP (Balance of Payments) Status:** BoP status of a country reveals performance of the economy in relation to rest of the world. Balance of trade (Export and Import) shows our capacity to export and compulsion to import.
- (5) **Problems of Poverty and Environmental Pollution:** Macroeconomics offers insights into the problems of poverty and environmental pollution. It is by using macro-models that these problems are addressed.
- (6) **Policy Formulation:** Information relating to macroeconomic variables (like aggregate demand, aggregate supply, total consumption and investment expenditure in the economy, output across different sectors of the economy and the like) is extremely useful in the formulation of policies for the growth and development of the country.

Emerging challenges of the economy become evident only through macroeconomic data.

In short, we can say that the knowledge of macroeconomic variables and macroeconomic models is extremely essential in understanding the performance of the economy, as well as in the formulation of policies and programmes for its growth and development.

Power Points & Revision Window

Macroeconomics is that branch of economics which studies economic problems (or economic issues) at the level of economy as a whole.

Microeconomics as different from Macroeconomics

- **Microeconomics** deals with the problem of choice and scarcity at the individual level, while macroeconomics does it at the level of economy as a whole.
- **Microeconomics** uses microeconomic variables (like consumer's demand and producer's supply), while macroeconomics uses macroeconomic variables (like AD and AS).
- **Microeconomics** involves lesser degree of aggregation than the macroeconomics.
- **Microeconomics and macroeconomics** are based on different set of assumptions.
- **Allocation of resources** is the central issue in microeconomics, while in macroeconomics the central issue is the determination of national income and employment.
- **What is ideal at the micro level** (like, saving by an individual) may not be ideal at the level of an economy as a whole.

Scope and Significance of Macroeconomics

- **Scope:** (i) Estimation of national income and related aggregates, (ii) Theory of employment, (iii) Theory of money, (iv) Theory of general price level: inflationary and deflationary gaps, (v) Role of the government (or government budget), (vi) Exchange rate and balance of payments.
- **Significance:** (i) Description of the economy, (ii) Roadmap of growth and development, (iii) Economic stability, (iv) BoP (Balance of Payments) status, (v) Problems of poverty and environmental pollution, (vi) Policy formulation.

EXERCISE

1. Objective Type Questions (Remembering & Understanding based Questions)

A. Multiple Choice Questions

Choose the correct option:

1. Macroeconomics is concerned with:
 - (a) the level of output of goods and services in the economy
 - (b) the general level of prices
 - (c) GDP growth
 - (d) all of these

2. Study of general price level is a subject matter of:
 - (a) microeconomics
 - (b) macroeconomics
 - (c) both (a) and (b)
 - (d) none of these
3. Aggregation is involved in:
 - (a) microeconomics
 - (b) macroeconomics
 - (c) both (a) and (b)
 - (d) none of these
4. Economic agents include:
 - (a) government
 - (b) consumers
 - (c) producers
 - (d) all of these
5. Which of the following statements is associated with general equilibrium analysis?
 - (a) Equilibrium in the market of gold ornaments
 - (b) Equilibrium across all markets in the economy
 - (c) Equilibrium price of a good in the competitive market
 - (d) None of these

Answers

1. (d) 2. (b) 3. (c) 4. (d) 5. (b)

B. Fill in the Blanks

Choose appropriate word and fill in the blank:

1. Aggregate demand is not a _____ variable. (micro/macro)
2. _____ is related to the economy as a whole. (Microeconomics/Macroeconomics)
3. Study of price behaviour in India will come under the preview of _____ . (microeconomics/macroeconomics)
4. Monetary and fiscal policies of the government are a part of _____ analysis. (microeconomic/macroeconomic)
5. From the viewpoint of economy, saving leads to _____ in aggregate demand. (rise/fall)
6. Allocation of resources is the central issue in _____ . (microeconomics/macroeconomics)
7. Determination of overall level of output is the central issue in _____ . (microeconomics/macroeconomics)

Answers

1. micro 2. Macroeconomics 3. macroeconomics 4. macroeconomic
 5. fall 6. microeconomics 7. macroeconomics

C. True or False

State whether the following statements are True or False:

1. Microeconomics studies the problem of scarcity and choice at the level of economy as a whole. (True/False)
2. General equilibrium relates to macroeconomics. (True/False)
3. Output of a firm is not a macro variable. (True/False)
4. Aggregation is involved only in macroeconomics. (True/False)

5. If an individual saves more, he adds to his future prosperity. However, if an economy saves more, it may be driven towards future poverty. (True/False)
6. What is logical at the macro level may not be true at the micro level. (True/False)
7. A profit-maximising firm is not an economic agent. (True/False)

Answers

1. False 2. True 3. True 4. False 5. True 6. True 7. False

D. Matching the Correct Statements

I. From the set of statements given in Column I and Column II, choose the correct pair of statements:

Column I	Column II
(a) General equilibrium	(i) Microeconomics
(b) Commodity market	(ii) Partial equilibrium
(c) Microeconomics	(iii) Total output and employment are taken as constant
(d) Problem of unemployment in India	(iv) A microeconomic activity
(e) Macroeconomics	(v) Study of price behaviour of a firm

Answer

(c) Microeconomics—(iii) Total output and employment are taken as constant

II. Identify the correct sequence of alternatives given in Column II by matching them with respective items in Column I.

Column I	Column II
(a) Macro	(i) Limited degree of aggregation of economic variables
(b) National income	(ii) Central issue of macroeconomics
(c) Partial equilibrium	(iii) Means large
(d) Microeconomics	(iv) Equilibrium in one market
(e) Determination of overall level of output	(v) A macroeconomic variable

Answers

(a)—(iii), (b)—(v), (c)—(iv), (d)—(i), (e)—(ii)

E. 'Very Short Answer' Objective Type Questions

1. Define macroeconomics.

Ans. Macroeconomics is the study of economic relationships, economic problems or economic issues at the level of economy as a whole, like the problem of inflation or of unemployment.

2. Define microeconomics.

Ans. Microeconomics is the study of economic relationships, economic problems or economic issues at the level of an individual like a consumer, or a producer.

3. Give two examples of macroeconomic studies.

Ans. (i) Study of price behaviour in India, and
(ii) Study of unemployment in India.

4. Give two examples of microeconomic studies.

Ans. (i) Study of consumer behaviour: consumer equilibrium & law of demand, and
(ii) Study of price determination in the commodity market.

5. Give two examples of macroeconomic variables.

Ans. (i) Aggregate supply, and
(ii) Aggregate demand.

6. What is meant by economic agents?

Ans. Economic agents are the individuals or institutions who take economic decisions.

2. Reason-based Questions (Comprehension of the Subject-matter)

Read the following statements carefully. Write True or False with a reason.

1. Study of the problem of unemployment in India is considered a microeconomic study.

Ans. False. Problem of unemployment in India is an economic issue at the level of economy as a whole, hence considered as macroeconomic study.

2. Aggregation is involved only in macroeconomics.

Ans. False. The difference lies in the degree of aggregation. While in microeconomics, aggregation is done at the level of an individual household, an individual industry or an individual market, in macroeconomics, aggregation is done at the level of an economy as a whole.

3. Monetary and fiscal policies of the government are a part of macroeconomic analysis.

Ans. True. Both these policies are related to issues of growth and development at the level of the economy as a whole.

4. Aggregate demand in macroeconomics is identical with market demand in microeconomics.

Ans. False. Aggregate demand is the sum total of demand for all the goods and services in the economy whereas market demand refers to demand for a particular commodity in the market.

5. 'Save more' is always a virtue.

Ans. False. Saving is a virtue at the micro level but not necessarily at the macro level. Because, greater saving implies lesser expenditure, lesser demand and therefore lower inducement to invest.

6. Problem of scarcity and choice ceases to exist at the macro level when resources of the entire nation are pooled together.

Ans. False. Even if resources of the entire nation are pooled together, these continue to be scarce in relation to the aggregate demand of the economy.

3. HOTS & Applications

1. Macroeconomics is the study of aggregates while microeconomics is not. Comment.

Ans. It is wrong to state that there is no aggregation in microeconomics.

It is in microeconomics that we study concepts like market demand which is the aggregate of individual demand for a commodity. However, the difference lies in the degree of aggregation. While in microeconomics, aggregation is done at the level of an individual household, an individual industry or an individual market, in macroeconomics, aggregation is done at the level of an economy as a whole.

2. What is true at the micro level may be a paradox at the macro level? Explain with an example.

Ans. What is true at the micro level may not be true at the macro level. This is the meaning of paradox. Example: Saving is a virtue for an individual. If he saves more, he accumulates more wealth and therefore enhances his ability to earn more. But at the macro level, if everyone starts saving more, demand for goods and services may decline to the extent that there is no inducement to invest. Consequently, income and production level may reduce.

3. Do you think that the general price level is of any relevance at the micro level?

Ans. General price level is a macro issue. But it is of great significance at the micro level. An individual producer would always monitor the trend path of the general price level. If prices are rising, business expectations are high. It induces investment. If, on the other hand, prices are falling, business expectations turn to be sluggish. Inducement to invest is hurt. Accordingly, investment is reduced.

4. Analysis & Evaluation

1. What may happen if savings are encouraged in an economy?

Ans. Increased savings are not good for the economy because (in absence of increased investment) they cause a fall in the level of AD (aggregate demand), because of which the level of employment or output may fall. However, if increased savings are mobilised and converted into capital formation they become instrumental in the growth of economy by boosting the level of employment or output or income.

2. What do you think is the significance of macroeconomic agents in the economy? Support your answer with example.

Ans. Macroeconomic agents refer to the institutions as decision-makers in the economy. RBI (Reserve Bank of India) is an example of macroeconomic agent in India.

The RBI plays a significant role in monitoring the supply of money in the economy. Excess supply of money may lead to inflation while deficient supply may lead to deflation. By regulating the supply of money, the RBI combats the situations of inflationary and deflationary gaps in the economy.

5. NCERT Questions (With Hints to Answers)

1. What is the difference between microeconomics and macroeconomics?

[Hint: (i) Microeconomics studies economic issues or economic problems at the level of an individual—an individual firm, an individual household or an individual consumer. On the other hand, macroeconomics studies economic issues or economic problems at the level of an economy as a whole.

(ii) Allocation of resources to different uses is the central issue in microeconomics. On the other hand, determination of the level of output and employment is the central issue in macroeconomics.

(iii) There is a smaller degree of aggregation in microeconomics. Example: We study output behaviour of an industry which is aggregate of all the firms producing a particular commodity. On the other hand, there is a larger degree of aggregation in macroeconomics. Example: We study national output which is aggregate of output of all the producing units in the economy.]

2. Describe the Great Depression of 1929.

[Hint: It was precisely in 1929 that great depression affected developed economies of the capitalistic world. Its impact continued almost for the entire decade of 30's. During that worldwide depression, there was a persistent fall in the level of employment and output. In USA, unemployment shot up from 3% to 25% between the period 1929-33. Fall in employment was accompanied with a fall in GDP. Between the period 1929-33, GDP in USA fell by about 33%.]

6. Miscellaneous Questions and Reference to the Text for Answers

A. Questions of 3 & 4 marks each

1. What do you mean by macroeconomics?

[Page 3]

2. State the scope of macroeconomics.

[Page 6, 7]

3. State any four differences between microeconomics and macroeconomics. [Page 3–6]
4. What is the difference between partial equilibrium and general equilibrium? [Page 5]

B. Questions of 6 marks each

1. What is meant by macroeconomics? Discuss its scope. [Page 3, 6, 7]
2. Explain the differences between microeconomics and macroeconomics. Give suitable examples. [Page 3–6]
3. What is the significance of macroeconomics? [Page 7, 8]

DOs and DON'Ts

1. Do not ever conclude that there is no aggregation of economic units in microeconomics (or that, there is aggregation of economic units only in macroeconomics). There is aggregation of economic units in microeconomics as well, though to a limited extent. Thus, when we study equilibrium of the industry (or market equilibrium), we are focusing on aggregation of the firms.
2. Do not ever consider a situation as good or bad both at the micro and macro levels. What is good at the micro level may not be good at the macro level. Thus, an individual producer may find production of liquor as more profitable business than the production of clean domestic fuel. But at the level of the economy as a whole, the government may discourage the production of liquor through heavy taxation, and encourage the production of clean domestic fuel through subsidy.



● Emergence of Macroeconomics as a Separate Branch of Economics

Great Depression of 1930's is a landmark event that led to the emergence of macroeconomics as a separate branch of economics. It does not mean that the concept of macroeconomics did not exist prior to this event. But, macroeconomics (prior to the Great Depression) was considered more like an extension of microeconomics: it did not exist as a separate (or specialised) branch of economics. Of course, there was a reason to it:

It was believed by the (classical) economists that the principles of microeconomics were enough to explain the behaviour of the economy as a whole. The argument runs like this:

- Microeconomics teaches us that (in pursuit of self-interest) every individual (in a market economy or a free economy) maximises his satisfaction with his given income.
- Maximisation of individual satisfaction (or welfare) implies the maximisation of welfare of all the individuals in the economy. It implies maximisation of social welfare.
- If social welfare is maximised, the scarce resources in the economy must have been optimally utilised.
- Microeconomics further teaches us that in a free economy (or under perfect competition), all markets tend to be in a state of equilibrium. Thus, in the labour market $S_L = D_L$ (supply of labour = demand for labour). It is a situation of full employment.

- There could be unemployment when $S_L > D_L$. But, in such a situation wage rate would fall, leading to a fall in S_L and rise in D_L . Eventually, the situation of full employment would automatically be restored. Thus, full employment is a normal feature of a market economy.

Briefly, the principles of microeconomics explain that in a free economy:

- social welfare is maximised,
- resources are optimally utilised, and
- full employment is a normal situation.

Accordingly, the classical economists concluded that the principles of microeconomics were enough to explain the behaviour of the economic activity at the macro level. There was no need to consider macroeconomics as a separate branch of economics.

- **Great Depression of 1930's contradicted the Classical Thought**

During the depression of 30's, economic events unfolded in such a manner that the classical thought was totally contradicted. Following points are of notable significance in this regard:

- The depression of 30's led to huge unemployment in the developed countries of the world (North America and Europe).
- In USA, unemployment shot up from 3% to 25% between the period 1929-33.
- Fall in employment was accompanied with a fall in GDP, Between the period 1929-33, GDP in USA fell by about 33%.
- Fall in GDP led to a fall in AD (aggregate demand). Accordingly, there were drastic cuts in output as planned by the producers across all sectors of the economy.
- Cut in planned output implied a further fall in employment and GDP in the economy.

Thus, during the depression of 30's, the western economies were driven into the vicious circle of low demand and low GDP. This circle operated as under:

Low AD → Low planned output → Low level of employment → Low GDP
→ Low AD

This is called '**Low Level Equilibrium Trap**'.

The classical economists failed to find any answer to this low level equilibrium trap. Market forces of supply and demand failed to break it. It is in such a situation that macroeconomics emerged as a separate branch of economics.

Prof. Keynes was the pioneer in the field of modern macroeconomics. He invented several macroeconomic variables (like AD and AS) and formulated a macroeconomic model to break the vicious circle of 'low level equilibrium trap'. He diagnosed lack of AD as the root cause of the problem, and suggested large scale expenditure by the government as a remedy.



SOME BASIC CONCEPTS OF MACROECONOMICS

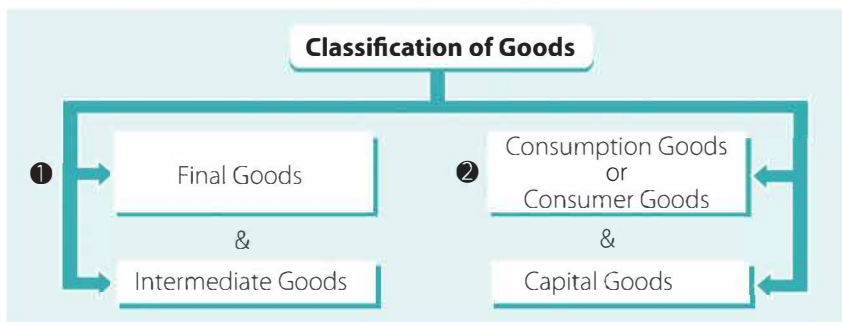
TO DO

- *Classification of Goods:*
 - (i) *Final Goods and Intermediate Goods*
 - (ii) *Consumption Goods and Capital Goods*
- *Concept and Components of Consumption Expenditure*
- *Concept and Components of Investment*
- *Stocks and Flows*
- *Four Sectors of the Economy*
- *Intersectoral Flows—Real Flows and Money Flows*
- *Circular Flow of Income*

I. CLASSIFICATION OF GOODS

Countless number of goods are produced and consumed in the economy. These are like shoes and shirts for the school children, machines and tools for the farms and firms, guns and ammunition for the defence forces, ships and airplanes for tourists, and so on. Different goods show different characteristics. Broadly, goods are classified in two ways:

- (i) Final Goods and Intermediate Goods, and
- (ii) Consumption Goods and Capital Goods.



Following is a brief description of these categories:

Final Goods

These are those goods which have crossed the boundary line of production and are ready for use by their final users. **Who are the final users?** These are (i) consumers, and (ii) producers. Accordingly, final goods are often classified as: (i) **final consumer goods**, and (ii) **final producer goods**. Final consumer goods are finally purchased by the consumers for the satisfaction of their wants. Final producer goods are finally purchased by the producers and are generally used as fixed assets in the process of production.



Final consumer goods are the goods which are ready for use by their final users, and consumers are their final users. **Example:** Bread and butter, as used by the consumers.

Final producer goods are the goods which are ready for use by their final users, and producers are their final users. **Example:** Tractors and harvesters, as used by the farmers.

Expenditure on final consumer goods by the households is called **consumption expenditure**. Expenditure on final producer goods by the producers is called **investment expenditure**. Accordingly,

Expenditure on Final Goods = Consumption expenditure + Investment expenditure.

Expenditure on Final Goods = Consumption expenditure + Investment expenditure

What do we mean when we say that final goods have crossed the boundary line of production? We mean that these goods are out of the process of production or the process of value addition.

Example: A shirt in a retail showroom is all set for sale to its final user. No value is to be added to the shirt by way of stitching, ironing, packaging, etc. The only value addition left now is when it is actually sold to the consumer, who is its final user. If the retailer purchases this shirt for ₹ 900 from the wholesaler and sells for ₹ 1,000 to the consumer, there is value addition of ₹100 (= ₹ 1,000 – ₹ 900). This is the final stage of value addition to the shirt. Once it is sold to the consumer (the final user) the shirt will be treated as out of the boundary line of production, and shirt worth ₹ 1,000 counted as a final good. **You may note that only final goods are included in the estimation of national product or national income.**

Intermediate Goods

Intermediate goods are those goods (i) which have yet not crossed the boundary line of production, (ii) value is still to be added to

these goods, and (iii) which are yet not ready for use by their final users. In other words, intermediate goods are those goods which are purchased by one firm from the other firm: (i) as raw material, or (ii) as goods for resale. **Example:** Shirts purchased by firm X from firm Y for resale are intermediate goods. Because, value is to be added to the shirts through resale. Likewise, wood purchased by a carpenter (from a timber merchant) for making chairs is an intermediate good. Because, wood is used as a raw material for making chairs. Value is to be added to wood by converting it into chairs.

Intermediate goods are those goods which are within the boundary line of production, value is yet to be added to these goods, and these goods are yet not ready for use by their final users.

Or

Intermediate goods are those goods which are purchased by one firm from the other either for resale or for use as a raw material.

Value of intermediate goods ultimately becomes a part of the value of final goods. **Example:** When a carpenter buys wood worth ₹ 10,000 and converts it into chairs worth ₹ 20,000, then the value of chairs (final goods) includes the value of wood (intermediate good). Accordingly, intermediate goods are not included in the estimation of national product or national income. Otherwise, there would be duplication in the estimation of national product, called 'Double Counting' (counting the value of a good more than once).

*Expenditure on intermediate goods by the producers during an accounting year is called **intermediate consumption** or **intermediate cost**. If intermediate consumption is deducted from the value of output, we get 'gross value addition' (also called Gross Value Added, or Gross Product of the producer). Thus,*

Value of Output (say chairs)

– Intermediate consumption (cost of wood and other material used in the production of chairs)

*= **Gross value addition** or gross product of the producer.*



The Same Good May be Final or Intermediate

It is not possible to name one set of goods as final goods and another set as intermediate goods. The same good may be final or intermediate good. The distinction depends on the **end-use** of the goods. To illustrate, sugar used as a raw material in the production of biscuits is an intermediate good. But, sugar used by the households in milk or tea is a final good. Likewise, paper purchased by a student is a final good. But when purchased by a publisher (for making books), it is an intermediate good.

What Matters is the End-use of Goods

Note

End-use of the goods is the principal basis of classifying the goods as intermediate goods and final goods.

While classifying goods as final or intermediate, what matters is the **end-use** of goods. You are to check what end-use a good is put to. If it is used by the producers as a raw material, it is to be treated as an intermediate good. Also, if it is purchased and resold by the producers, it is to be treated as an intermediate good. But if it is used by the producer as a fixed asset (like a tractor used by the farmer), it is to be treated as a final good. And, of course, goods purchased by the households for final consumption, are to be treated as final goods. Thus, a good as such is not to be named as final or intermediary. Milk as such is not to be taken as final or intermediary. It is to be treated as final or intermediary depending on its end-use. It may also be noted that a good may be used partly as an intermediary and partly as final. Thus, the entire milk sold by the dairy farmers in a village may not be a final good. Only that part of it is to be treated as final good which is sold to the consumer households. The other part which is sold to the producers for making sweets (and which is used as a raw material) is to be treated as an intermediate good.

Intermediate and Final Goods—The Difference

	Intermediate Goods	Final Goods
	<p>(i) These goods remain within the boundary line of production, and are not ready for use by their final users.</p> <p>(ii) These goods may be used as raw material for the production of other goods during the accounting year.</p> <p>(iii) These goods may be resold by the firms for profit during the accounting year.</p> <p>(iv) Value is yet to be added to these goods.</p> <p>(v) Expenditure on these goods is called intermediate consumption or intermediate cost.</p> <p>(vi) These goods are not included in the estimation of national product or national income.</p>	<p>(i) These goods are outside the boundary line of production, and are ready for use by their final users.</p> <p>(ii) These goods are not used as raw material for the production of other goods during the accounting year.</p> <p>(iii) These goods are not resold by the firms for profit during the accounting year.</p> <p>(iv) Value is not to be added to these goods.</p> <p>(v) Expenditure on these goods is called final expenditure (= C + I).</p> <p>(vi) These goods are included in the estimation of national product or national income.</p>

[**Note:** Accounting year is the year during which production of goods and services is estimated in the domestic economy. Or, it is the year during which national product/national income is estimated for the country.]

Q. 1. How would you find out whether a particular expenditure is an expenditure on intermediate goods or on final goods?

Ans. Expenditure on final goods must lead to: (i) final consumption expenditure (C), or (ii) investment expenditure (I). The expenditure which does not lead to C and I (like the expenditure on raw material) is to be treated as an expenditure on intermediate goods. Expenditure on intermediate goods leads to intermediate consumption or intermediate cost.

Q. 2. Purchase of a car always means the purchase of a final good. Do you agree?

Ans. No. It depends on the end-use of the car. If it is purchased by a household, it is a final good. It is like a consumer durable.

If it is purchased by taxi-operators, then again it is a final good, as it is to be finally used by the producer as a fixed asset.

However, if the car is purchased by a retail dealer from the factory for the purpose of resale, it is to be treated as intermediate good.

Consumption Goods or Consumer Goods

Consumption goods (or consumer goods) are those goods which are directly used for the satisfaction of human wants. **Example:** Ice cream and milk as used by the households. These goods are consumed by the households when purchased.

Consumption goods are broadly classified into four categories, as under:



- (1) **Durable Consumption Goods:** Durable consumption goods are those goods which can be used for several years and are of relatively high value. These goods are repeatedly used before being discarded as useless. TV, radio, car, scooter, washing machine are some examples of durable consumption goods.
- (2) **Semi-durable Consumption Goods:** Semi-durable consumption goods are those goods which can be used for a period of one year or slightly more. These goods are not of very high value. Clothes, furniture, crockery, electric goods, etc., are the examples of semi-durable consumption goods.
- (3) **Non-durable or Single-use Consumption Goods:** Non-durable or single-use consumption goods are those goods which are used-up

in a single act of consumption. For example, the bread that you eat is used-up in a single act of consumption. The same bread cannot be used again. Also these goods are of relatively low value. Ink, domestic LPG, milk and petrol are some other examples of non-durable or single-use consumption goods.

- (4) **Services:** Services are those non-material goods which directly satisfy human wants. A few examples of services are the services of a doctor, lawyer, domestic servant, etc.

Capital Goods

Capital goods are fixed assets of the producers. Plant and machinery are the examples of capital goods. These goods are used by the producers either for (i) the replacement of the capital stock, or for (ii) addition to the capital stock. As fixed assets, capital goods are repeatedly used in the process of production for several years and are of high value. Even nuts and bolts (or nails and screws) are used for several years, but these are not capital goods. Because these are of low value. Thus, only those fixed assets of the producers are taken as capital goods which are used in the process of production for several years and which are of high value. Also, capital goods involve depreciation. It refers to loss of value of fixed assets (in use) owing to their wear and tear.

Did You Know it?

All Machines are not Capital Goods

It must be borne in mind that all machines are not capital goods. A sewing machine in a tailoring shop is a fixed asset of the tailor; it is a capital good. But the same machine with a consumer household is not a capital good. It is simply a durable-use consumer good. Likewise, a car with a tourist company is a capital good. But the same car with a consumer household is a durable-use consumer good. Thus, while identifying goods as capital goods, we must make sure about their end-user. If the end-user of a durable good is a household consumer, it is durable-use consumer good. On the other hand, if the end-user of a durable good is a producer, it is a capital good. **Capital goods are only those durable goods which are used as producer goods, not as consumer goods.**

FOCUS ZONE


Capital goods are fixed assets of the producers. These goods are used in the process of production for several years and are of high value. Use of these goods leads to depreciation (loss of value of fixed assets when these are repeatedly used). **Example:** Plant and machinery.

All Capital Goods are Producer Goods, But all Producer Goods are not Capital Goods

Producer goods are those goods which are used in the production of other goods. These goods include: (i) goods used as raw material by the producers, like wood used to make furniture, and (ii) goods used as fixed assets by the producers, like plant and machinery. Unlike fixed assets of the producers, goods used as raw material are not durable-use goods. These are single-use producer goods: these cannot be repeatedly used in the process of production. Thus, the same wood cannot be repeatedly used to make furniture. Fixed assets (or capital goods), on the other hand, are repeatedly used in the process of production. These are durable-use producer goods.

Thus, while all capital goods are producer goods, all producer goods are not capital goods.

Consumption Goods and Capital Goods—The Difference

Consumption Goods	Capital Goods	
(i) <i>Consumption goods lead to direct-satisfaction of human wants.</i>	(i) <i>Capital goods do not lead to direct-satisfaction of human wants.</i>	
(ii) <i>These goods are consumed by the households when purchased.</i>	(ii) <i>These goods are not consumed by the households. Instead, these are used by the producers for further production.</i>	
(iii) <i>Expenditure on consumption goods is called consumption expenditure.</i>	(iii) <i>Expenditure on capital goods is called investment expenditure.</i>	
(iv) <i>Higher production of consumption goods leads to higher level of welfare of the people. It raises their quality of life.</i>	(iv) <i>Higher production of capital goods leads to higher production capacity in the economy. It is the backbone of GDP growth.</i>	

[Note: Both consumption goods and capital goods have one common characteristic: that are final goods, and therefore, included in the estimation of national income.]

HOTS

Q. All producer goods are not capital goods. Why?

Ans. Producer goods include: (i) goods used as raw material, like wood used to make furniture, and (ii) goods used as fixed assets, like plant and machinery. Capital goods include only fixed assets of the producers. These are durable-use producer goods. On the other hand, goods used as raw material are single-use producer goods. These are not repeatedly used in the process of production. Accordingly, all producer goods are not capital goods.

2. CONCEPT AND COMPONENTS OF CONSUMPTION EXPENDITURE

In macroeconomics, consumption expenditure refers to aggregate consumption expenditure in the economy. **Who are the consumers in an economy?** These are broadly classified as: (i) households, (ii) the government, and (iii) non-profit private institutions (like NGO, temples, mosques, gurudwaras, and others). Households buy consumer goods for the satisfaction of their wants. The government buys consumer goods for distribution among defence forces, for mid-day meals in the government schools, and such other purposes. Non-profit private institutions buy consumer goods for charity. If we add up expenditure on the purchase of consumer goods by the households, government and non-profit private institutions, we get an estimate of total consumption expenditure in the economy. Thus:

Aggregate Consumption Expenditure

= Consumption expenditure by the households + Consumption expenditure by the government + Consumption expenditure by the non-profit private institutions (NGO, temples, mosques, gurudwaras, and others)

3. CONCEPT AND COMPONENTS OF INVESTMENT

What is Investment?

Investment refers to increase in the stock of capital. Thus:

$$I = \Delta K$$

Here, I = Investment
K = Capital stock
 ΔK = Change in capital stock during the year.

Change in the stock of capital is called '**capital formation**'. Accordingly, investment is also defined as capital formation.

From the viewpoint of the economy as a whole, investment refers to total production of capital goods during an accounting year. As noted earlier, these goods may be used either for the replacement of existing capital stock or for adding to the existing capital stock.

Investment refers to capital formation, or a process that increases the stock of capital.

Fixed Investment and Inventory Investment

Investment has two components:

- (i) Fixed investment, and
- (ii) Inventory investment.

Following are the details:

Fixed Investment

Fixed investment refers to increase in the stock of fixed assets (like plant and machinery) of the producers during an accounting year.

Example: If at the beginning of the year 2019, a producer has stock of 8 machines and at the end of 2019, he has a stock of 10 machines, then the stock of his fixed assets increases by 2 machines during the year 2019.

Fixed investment of the producer during the year 2019 = 2 machines.

Fixed Investment

= Stock of fixed assets with the producers at the end of the accounting year
– Stock of fixed assets with the producers at the beginning of the accounting year
= Increase in the stock of fixed assets with the producers during an accounting year

Fixed investment is also called **fixed capital formation**. This implies increase in the stock of capital in terms of fixed assets (or capital goods) which are repeatedly used in the process of production for several years.

Significance of Fixed Investment

Following observations bring out the significance of fixed investment:

- (i) Fixed investment **raises production capacity of the producers**.
- (ii) By raising production capacity of the producers, fixed investment leads to higher level of output in the economy.
- (iii) Higher level of output (because of fixed investment) leads to higher rate of economic growth, popularly known as GDP growth.

Inventory Investment

At a point of time, producers hold the stock of (i) finished goods (unsold goods), (ii) semi-finished goods (goods which are in the process of production), and (iii) raw material. This is called '**inventory stock**'. Change in inventory stock during the year is called inventory investment of the producers.

Inventory Investment

- = *Inventory stock at the end of the accounting year*
- *Inventory stock at the beginning of the accounting year*
- = *Change in inventory stock during an accounting year*



Significance of Inventory Investment

Inventory investment primarily consists of investment in terms of the stock of (i) raw material, and (ii) finished goods.

The stock of raw material is significant because:

- (i) It ensures uninterrupted supply of inputs to the producers.
- (ii) With enough stock of raw material, the producers can avoid day-to-day purchases from the market. Accordingly, uncertainties of the market (relating to price and availability of the raw material) are avoided.

The stock of finished goods is significant because it enables the producers to meet the potential (future) demand for their product.

Here, it may be noted that the actual inventory stock at a time may not be the desired inventory stock. A part of it may be undesired. A producer may have expected to sell 1,000 units of washing machines. But, actually he could sell 500 units owing to the lack of demand. In such a case, 500 units of washing machines (unsold stock) are an undesired inventory stock. Such a stock leads to losses.

Desired inventory stock refers to planned inventory stock. This is maintained by the producers to meet the future demand.

Undesired inventory stock, on the other hand, refers to unplanned inventory stock. It arises because demand for the product turns out to be lower than expected. Unplanned inventory stock leads to losses.

Gross Investment, Net Investment and The Concept of Depreciation

Gross investment refers to total production of capital goods during the year. This includes (i) capital goods used for the replacement of existing capital stock (which is worn-out), and (ii) capital goods used as a net addition to the existing capital stock.

- Capital goods used for the replacement of existing capital stock refers to '**depreciation**'.
- Capital goods used as net addition to the existing capital stock is called '**net investment**'.
- $\text{Gross Investment} = \text{Net investment} + \text{Depreciation}$ (also called replacement investment)
- $\text{Net Investment} = \text{Gross investment} - \text{Depreciation}$ (also called replacement investment)

Gross Investment = Net investment + Depreciation (expenditure on the replacement of worn-out fixed assets or replacement investment)

Net Investment = Gross investment - Depreciation

Did You Know it?

Only net investment leads to addition to the stock of capital. Depreciation (a part of gross investment) only replaces the worn-out fixed assets. It helps to maintain the existing stock of capital.

Significance of Net Investment

Following observations highlight the significance of net investment:

- (i) It raises the stock of capital in the economy. Higher stock of capital increases the availability of capital per unit of labour. Accordingly, efficiency of labour rises.
- (ii) It helps generate opportunities of employment. Because, unemployment in India is largely due to the lack of capital.
- (iii) Net investment is a net rise in production capacity of the economy. Accordingly, GDP growth is accelerated.

Briefly, **net investment enhances production capacity, generates opportunities of employment, promotes efficiency of labour and accelerates GDP growth.**

Gross Investment and Net Investment—The Difference

Gross Investment	Net Investment
(i) It includes expenditure by the producers on the purchase of new assets as well as expenditure on the replacement of existing assets during an accounting year.	(i) It includes expenditure by the producers on the purchase of new assets only. More specifically, it does not include expenditure by the producers on the replacement of existing assets.
(ii) It includes replacement investment (= depreciation of fixed assets).	(ii) It does not include replacement investment.
(iii) It does not show net addition to the existing capital stock.	(iii) It shows net addition to the existing capital stock.



[**Note:** Both gross investment as well as net investment include: (i) fixed investment, and (ii) inventory investment.]

HOTS

Q. How does higher rate of net capital formation lead to higher level of productivity/efficiency of labour?

Ans. Higher rate of net capital formation implies greater availability of capital (in terms of machines) per unit of labour. Aided by machines, efficiency of labour definitely increases. This precisely is the reason why labour in developed countries (like USA) is more efficient than in less developed countries like India.

Concept of Depreciation

While fixed assets (like plant and machinery) are in use, they go down in value owing to (i) normal wear and tear, and (ii) accidental damages (beyond their routine repairs and maintenance). They go down in value also when they become obsolete (or outdated) due to change in technology or change in demand. This is called '**expected obsolescence**' (which the producers normally expect to happen). Depreciation is the loss of value of fixed assets in use on account of:

- (i) normal wear and tear,
- (ii) accidental damages, and
- (iii) expected obsolescence.

Depreciation is also called **consumption of fixed capital**. Because of depreciation, fixed assets need to be replaced from time to time. Replacement of fixed assets requires funds. Provision for the funds is made on annual basis. To illustrate, if a machine is purchased for ₹ 10,00,000 and its expected lifetime of use is 10 years, then the annual provision for funds (to replace the machine after

10 years) = $\frac{₹ 10,00,000}{10} = ₹ 1,00,000$. This is called Depreciation Reserve Fund.

Depreciation reserve fund refers to that fund which the producers keep for replacement investment.

Significance of Depreciation Reserve Fund

Depreciation reserve fund is a fund to replace the worn-out fixed assets. It fulfills the need for replacement investment. Lack of depreciation reserve fund implies the lack of replacement investment. Accordingly, overall investment (gross investment) in the economy tends to fall. This leads to a fall in the level of output. The level of income and employment will also fall. The economy will slip into a state of 'economic slowdown'. It might be caught into a low level equilibrium trap: a situation when low income causes low demand, and low demand causes low output; and once again low income.

Expected and Unexpected Obsolescence

It is essential to know the difference between 'expected (or foreseen) obsolescence' and 'unexpected (or unforeseen) obsolescence'. Expected obsolescence has two components:


- (i) Loss of value of fixed assets when these become obsolete/outdated owing to **change in technology**. **Example:** A plant producing black and white TVs becomes obsolete when technology is discovered to produce colour TVs.
- (ii) Loss of value of fixed assets when these become obsolete/outdated owing to **change in demand**. **Example:** A plant producing rubber shoes becomes obsolete when demand shifts from rubber shoes to leather shoes.

Expected obsolescence is estimated by the producers on the basis of their knowledge and experience of the market conditions.


Unexpected obsolescence occurs owing to (i) natural calamities (like earthquake, floods or fire), and (ii) fall in market value of the assets when there is economic recession. Loss of value of fixed assets owing to unexpected obsolescence is called '**capital loss**'. These losses are not a part of depreciation or depreciation reserve fund.

Only expected obsolescence is considered for the estimation of depreciation, not the unexpected obsolescence.

Expected Obsolescence and Unexpected Obsolescence—The Difference

Expected Obsolescence	Unexpected Obsolescence	
(i) It refers to a fall in the value of fixed assets due to change in technology or change in demand.	(i) It refers to a fall in the value of fixed assets due to natural calamities or economic recession.	
(ii) It is a part of depreciation.	(ii) It is not a part of depreciation. Instead, it points to capital loss.	
(iii) Expected obsolescence is managed through depreciation reserve fund.	(iii) Unexpected obsolescence is managed through insurance of the fixed assets.	

Consumption of Fixed Capital and Capital Loss—The Difference

Consumption of Fixed Capital	Capital Loss	
(i) It refers to loss of value of fixed assets (capital goods) while these are being continuously used in the process of production.	(i) It refers to loss of value of fixed assets while these are not in use.	
(ii) It is a loss due to (a) normal wear and tear, (b) accidental damages, and (c) expected obsolescence.	(ii) It is a loss due to (a) natural calamities (earthquake, floods, fire, etc.), and (b) fall in the market value of the assets during periods of economic recession.	
(iii) It is managed through depreciation reserve fund.	(iii) It is managed through insurance of the fixed assets.	

HOTS

Q. 1. Distinguish between depreciation and depreciation reserve fund.

Ans. Depreciation is the loss of fixed assets in use on account of: (i) normal wear and tear, (ii) accidental damages, and (iii) expected or foreseen obsolescence.

On the other hand, depreciation reserve fund is a provision of funds to cope with depreciation losses. These funds are used for the replacement of fixed assets when these are worn-out or when these become obsolete/outdated.

Q. 2. What is current replacement cost?

Ans. It refers to the estimated value of depreciation for all the producing units in the economy, during the period of an accounting year.

4. STOCKS AND FLOWS

Meaning of Stock

A stock is a quantity measured at a particular point of time. On January 1, 2020 there may be ₹ 20,000 in your bank account. On

January 10, 2020, there may be ₹ 25,000 in your bank account. All such values are stock values, as these are measured at a specific point of time. Capital and quantity of money are notable examples of stock variables.

Meaning of Flow

A flow is a quantity measured over a specified period of time. You may be getting ₹ 1,500 per month as pocket allowance, you may be spending ₹ 50 everyday in the canteen, you may be getting 8 per cent annual interest on your bank deposits. All these values/quantities are 'flows' as these are measured per unit of time period (an hour, a day, a month, an year, etc.). Income, expenditure, production, consumption and interest are notable examples of flow variables.

Here are some more examples of Stocks and Flows:

Stock	Flow
1. Wealth	1. Income
2. Labour Force	2. Expenditure of Money
3. Capital	3. Capital Formation
4. Quantity/Supply of Money in a Country	4. Change in the Supply of Money in a Country
5. Bank Deposits	5. Interest on Capital
6. Water in the overhead tank	6. Leakage of water from the overhead tank
7. Distance between Delhi and Mumbai	7. Speed of a car going from Delhi to Mumbai
8. Rice stored in a godown	8. Sales of rice
9. Population of a country	9. Number of births

Stock and Flow—The Difference

FOCUS ZONE	Stock	Flow
	(i) Stock refers to the value of a variable at a point of time.	(i) Flow refers to the value of a variable during a period of time.
	(ii) Stock is not time dimensional. It is measured at a specific point of time.	(ii) Flow is time dimensional. It is measured per hour, per month or per year.
	(iii) Stock impacts the flow. Greater the stock of capital, greater is the flow of goods and services.	(iii) Flow impacts the stock. Greater the flow of income, greater is the stock of wealth with the people.

Did You Know?

Certain concepts in economics are studied only as flow variables, not as stock variables.

Example: Exports and Imports.

Mutual Dependence between Stock and Flow

Fig. 1 shows deposits of ₹ 20,000 in your saving bank account on January 1, 2020. This is a stock of your savings. The withdrawals from this account (₹ 1,000 per month) is a flow concept. Likewise, deposits of ₹ 2,000 per month is a flow concept.



A point to be noted is that your stock of savings depends upon your flow of deposits into your saving account. Likewise, your flow of withdrawals depends upon your stock of savings. Thus, there is a mutual dependence between stocks and flows.

HOTS

Q. Are the following Stocks or Flows?

(i) Investment, (ii) Monetary Expenditure, (iii) A Hundred Rupee Note, (iv) A Family's Consumption of Sugar, (v) Services of a Tutor, (vi) Production of Cement, (vii) Machinery of a Sugar Mill.

Ans. (i) **Investment:** It is a flow concept because it is related to a period of time.

(ii) **Monetary Expenditure:** It is a flow concept because it is related to a period of time.

(iii) **A Hundred Rupee Note:** It is a stock concept because it is a component of supply of money.

(iv) **A Family's Consumption of Sugar:** It is a flow concept because consumption relates to a period of time.

(v) **Services of a Tutor:** It is a flow concept because it is related to a period of time.

(vi) **Production of Cement:** It is a flow concept because it is related to a period of time.

(vii) **Machinery of a Sugar Mill:** It is a stock concept because it relates to a point of time.

5. FOUR SECTORS OF THE ECONOMY

From the macro point of view, economy is often divided into four sectors, viz.,

(1) **Household Sector:** It includes consumers of goods and services.

Households are also the owners of the factors of production.

- (2) **Producer Sector:** It includes all producing units (firms) in the economy. For the production of goods and services, the firms hire/purchase factors of production (land, labour, capital and entrepreneurial skill) from the households.
- (3) **Government Sector:** It includes: (i) Government as a welfare agency, and (ii) Government as a producer. Government as a welfare agency performs such welfare functions as of law & order and defence.
- (4) **The External Sector (also called Rest of the World Sector):** It includes all such activities which are related to export and import of goods, and the flow of capital between the domestic economy and rest of the world.

6. INTERSECTORAL FLOWS

Each sector of the economy depends on the other in one way or the other. This is called intersectoral interdependence. Following observations highlight the intersectoral interdependence:

- The household sector depends on the producer sector for the supply of goods and services, needed for consumption.
- The producer sector depends on the household sector for the supply of factors of production (also called factor services). These are needed for the production of goods and services.
- The government sector depends on the producer and household sectors for its tax and non-tax revenue.
- Producers and households depend on the government for administrative services, besides law & order and defence.

Intersectoral interdependence leads to intersectoral flows, either in the form of goods and services or in the form of money. Intersectoral flow in the form of money is called 'Money Flow', and intersectoral flow in the form of goods and services is called 'Real Flow'. Following is a brief description of money flows and real flows.

Real Flows

Real flows refer to the flow of goods and services among different sectors of the economy. Flow of factor services from household sector to the producer sector or the flow of goods and services from the producer sector to the household sector are examples of real flows.

Fig. 2 illustrates real flows in case of a simple 2-sector economy, including (i) household sector, and (ii) producer sector.



Fig. 2 shows real flows in terms of (i) flow of goods sold by the firms to the households, and (ii) flow of factor services rendered by the households to the producers. Both these flows are real as these involve the movement of goods and services from one sector to the other. Money does not come into the picture.

Money Flows

Money flows refer to the flow of money across different sectors of the economy. Flow of factor payments by the producer sector to the household sector (on account of the purchase of factor services) and flow of money from the household sector to the producer sector (on account of the purchase of goods and services) are examples of money flows. It needs to be noted that the money flows are just reciprocals of the real flows. Fig. 3 illustrates money flows in case of a simple 2-sector economy.



Fig. 3 shows money flows in terms of (i) flow of money from households to the producers (firms) for the purchase of goods, and (ii) flow of money from the producers to the households for the purchase of factor services. Each money flow is a reciprocal of the real

flow. Thus, money flow from households to the producers (for the purchase of goods) is a reciprocal of the real flow of goods from the producers to the households. Likewise, money flow from producers to the households (as payments for factor services) is a reciprocal of the real flow of factor services from the households to the producers.

HOTS

Q. Money flows are opposite to real flows. How?

Ans. Money flows are opposite to real flows. Because money flows are in response to the real flows.

Example: There is a real flow of goods and services from the producers to the households. It is in response to it, that the households make payments to the producers. So that, money flows from the households to producers in terms of consumption expenditure. Likewise, there is a real flow of factor services from the households to the producers. It is in response to it, that the producers make payments to the households. So that, money flows from producers to the households in terms of factor payments.

[**Note:** Students are advised to draw Fig. 2 and 3 in support of their answer.]

7. CIRCULAR FLOW OF INCOME

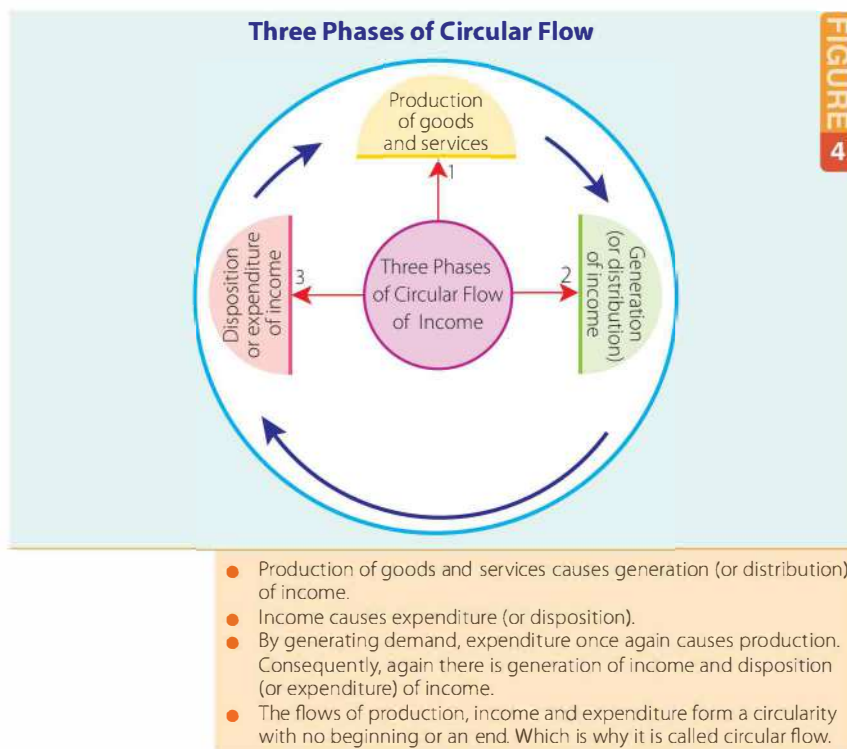
In every economy, three activities never stop: (i) production of goods and services, (ii) generation of income (in terms of wages, interest, rent and profit), and (iii) expenditure (in terms of consumption expenditure and investment expenditure). In fact, these activities are the lifeline of an economy—the concept of economy does not exist without these activities.

It is difficult to trace the beginning of these activities and it is impossible to predict their end. Production, income and expenditure are flow variables. These have been in existence like a circle without a beginning or an end. Circular flow of income means the circularity of the flows of production, income and expenditure in any economy. In fact, production, income and expenditure are the three phases of a circular flow in the economy.

Circular flow of income refers to the unending flow of the activities of production, income generation and expenditure involving different sectors of the economy, the producers and the households in particular. Each activity is the cause as well as the consequence of the other activity. Production in the producing sector generates income for the households who are owners of the factors of production. Expenditure by the households generates demand for further production. Accordingly, production, income generation and expenditure keep chasing each other like three dots continuously moving in a circle.

Three Phases of Circular Flow

Fig. 4 shows the three phases of circular flow in an economy.



Phase of Production

Production refers to 'value addition'. When wood worth ₹ 5,000 is converted into chairs worth ₹ 10,000, there is value addition worth ₹ 5,000 ($= ₹ 10,000 - ₹ 5,000$). This is what production means. Phase of production in the circular flow means the process of value addition by the producing sector.

The producing sector hires/purchases factors of production from the households who are the owners of these factors (land, labour, capital and entrepreneurship). The factor inputs are used along with the non-factor inputs (raw material, etc.) for the production of goods and services. Goods and services are produced for the satisfaction of human wants. There is no end to human wants. Accordingly, there is no end to the process of production.

Phase of Income Generation (also called the Phase of Distribution)

For rendering their factor services to the producers, the households get factor payments: rent for land, interest for capital, wages/salaries for labour and profit for entrepreneurship.

From the viewpoint of the households, these are factor incomes. Thus, in phase-2 of circular flow, there is generation of income (or distribution of income) as a consequence of the production of goods and services in phase-1. Now value addition is converted into factor income.

Phase of Disposition/Expenditure

Where does income go? It is spent or disposed of on the purchase of final goods and services. When households buy the final goods, there is consumption expenditure. When producers buy the final goods, there is investment expenditure. Thus, in phase-3, there is disposition (or expenditure) of income as a consequence of the generation of income in phase-2.

The story does not stop here. Consumption expenditure and investment expenditure generate demand for goods and services in the economy. This again causes production of goods and services, and consequently the generation of income. Thus, there is a non-stop flow of production of goods and services, generation of income and disposition of income. Each flow keeps chasing the other flow. Which is why it is called circular flow.

Considering the three phases together, we find that in a two sector economy:

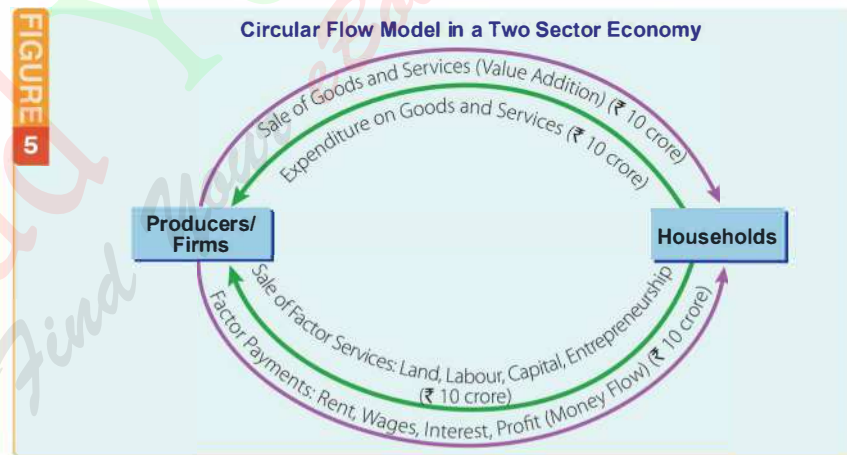
Production (the value of goods and services)
≡ Income generated
≡ Expenditure (in terms of C and I)

This is called **triple identity**. This is illustrated through a 2-sector circular flow model as in Fig. 5.

Did You Know it?

A **closed economy** is the one which does not have economic relations with rest of the world. There are no exports/imports of goods and services.

An **open economy** is the one which has economic relations with rest of the world. It exports goods and services to rest of the world and also makes import of goods and services.



Assumptions of the Model

The circular flow model, as in Fig. 5, is based on the following assumptions:

- There are only two sectors in the economy namely, households and producers.
- The households spend their entire income, so that there are no savings.

- (iii) The domestic economy is a closed economy, so that there are no exports and imports.
- (iv) There is no government in the domestic economy.

Observations

This model offers the following observations:

- (i) Factor payments by firms = Value addition by the firms. Thus, value addition is converted into factor incomes (= ₹ 10 crore).
- (ii) Total production of goods and services by firms = Total expenditure on goods and services by the household sector. Thus, all income is converted into expenditure on goods and services (= ₹ 10 crore).
- (iii) Value addition \equiv Income generated \equiv Expenditure on goods and services

Hence, the triple identity.

Money flows are just the monetary expression of real flows. Briefly, one can observe from the Circular Flow Model that: value added is converted into income and income is converted into expenditure. It is this conversion process which keeps the circular flow always in a state of circularity.

Significance of Circular Flow Model

Study of the circular flow of income is important due to the following reasons:

- (1) **Estimation of National Income:** Circular flow model facilitates the estimation of national income. National income is the sum total of factor incomes (rent + profit + wages + interest) flowing from producers to households of a country. It may also be defined as the market value of the goods and services flowing from producers to other sectors of the economy. Further, it may be defined as the sum total of expenditure on the goods and services produced by the producer sector.
- (2) **Knowledge of Intersectoral Interdependence:** A circular flow model helps understand interdependence among different sectors of the economy. We learn how consumers are dependent on producers and *vice versa*.

[**Note:** Circular flow of income is also called circular flow of money.]

Power Points & Revision Window

Classification of Goods

- **Final Goods** are those goods which have crossed the boundary line of production, and are ready for use by their final users. **Example:** Shoes used by the households, or tractor used by the farmers. Final goods must lead to either final consumption expenditure or investment expenditure in the economy.
- **Intermediate Goods** are those goods which are purchased by one firm from the other for resale or for use as raw material in the production of other goods. **Example:** Wood used in the production of chairs.
- **Consumption Goods** are those goods which are directly used for the satisfaction of human wants. **Example:** Milk and ice cream used by the households.
- **Capital Goods** are fixed assets of the producers and are repeatedly used in the process of production. These are durable-use producer goods and are of high value. **Example:** Plant and machinery.

Consumption Expenditure is the aggregate consumption expenditure in the economy.

- **Components:** (i) Consumption expenditure by the households, (ii) Consumption expenditure by the government, (iii) Consumption expenditure by the non-profit private institutions.

Investment is a process of adding to the stock of capital.

- **Components:** (i) Fixed investment, and (ii) Inventory investment.
- **Fixed Investment** is addition to the stock of fixed assets of the producers during an accounting year.
- **Inventory Investment** is addition to the stock of inventory with the producers during an accounting year.

Gross Investment is the expenditure on the purchase of fixed assets and expenditure on the inventory stock of the producers during the accounting year.

- **Net Investment** refers to increase in the stock of capital during an accounting year.

$$\text{Net Investment} = \text{Gross investment} - \text{Depreciation}$$

Depreciation (also called consumption of fixed capital) refers to loss of value of fixed assets in use, on account of (i) normal wear and tear, (ii) accidental damages, and (iii) expected (or foreseen) obsolescence.

- **Depreciation Reserve Fund** refers to that fund which the producers keep to cope with depreciation losses in the process of production.

Stocks are the quantities which are measured at a point of time. **Example:** Your balance in the bank account as on January 1, 2020.

- **Flows** are the quantities which are measured over a specified period of time. **Example:** Your income per month.

Four Sectors of the Economy

- **Household Sector** refers to consumers engaged in the consumption of goods and services.
- **Producing Sector** refers to all producing units (or firms) in the economy.
- **Government Sector** refers to government as a welfare agency (engaged in maintaining law and order, defence, and other services of public welfare). It also refers to government as a producer.
- **The External Sector** also called 'Rest of the World Sector', is engaged in the export and import of goods and the flow of capital between the domestic economy and rest of the world.

Circular Flow of Income refers to the circularity of the flows of production, income and expenditure across different sectors of the economy.

- **Real Flows** refer to the flow of goods and services across different sectors of the economy.
- **Money Flows** refer to the flow of money (in terms of receipts and payments) across different sectors of the economy.
- **Significance:** Circular flow models are significant as they:
 - (i) facilitate estimation of national income.
 - (ii) show interdependence among different sectors highlighting circularity of intersectoral flows.



1. Objective Type Questions (Remembering & Understanding based Questions)

A. Multiple Choice Questions

Choose the correct option:

- Consumption of all goods and services in the economy during the period of an accounting year is known as:
(a) aggregate demand (b) aggregate supply
(c) aggregate consumption (d) none of these
- Classification of goods depend on the:
(a) consumption of goods (b) production of goods
(c) first-use of goods (d) end-use of goods
- Final goods are used by the:
(a) consumers (b) producers
(c) government (d) all of these
- Those goods which satisfy human wants directly are called:
(a) intermediate goods (b) consumer goods
(c) capital goods (d) none of these
- Capital goods are those goods:
(a) which are used in the production process for several years
(b) which are used in the production process for few years
(c) which involve depreciation losses
(d) both (a) and (c)
- Food processor used by the households in their kitchen is an example of:
(a) capital goods (b) intermediate goods
(c) consumption goods (d) none of these
- In the production of sugar, sugarcane is:
(a) a final good (b) a capital good
(c) an intermediate good (d) none of these
- If a car is purchased by a taxi-operator, it will be regarded as a:
(a) capital good (b) intermediate good
(c) final good (d) both (a) and (c)
- T.V., radio, washing machine, etc., are examples of:
(a) durable consumer goods (b) semi-durable consumer goods
(c) single-use consumer goods (d) capital goods
- Which of the following is a semi-durable good?
(a) Radio (b) Clothes
(c) Milk (d) Petrol
- Increase in the stock of capital is known as:
(a) capital loss (b) capital gain
(c) capital formation (d) none of these

12. Net investment is equal to:
(a) gross investment + depreciation (b) gross investment – depreciation
(c) gross investment × depreciation (d) gross investment ÷ depreciation
13. Net capital formation causes:
(a) increase in production capacity (b) increase in depreciation
(c) increase in profits (d) increase in cost
14. Which of the following leads to depreciation?
(a) Normal wear and tear (b) Damages due to floods
(c) Damages due to market-crash (d) None of these
15. Which of the following leads to unexpected obsolescence?
(a) Change in demand (b) Natural calamities
(c) Change in technology (d) None of these
16. Which of the following is the cause of expected obsolescence?
(a) Natural calamities (b) Change in demand
(c) Change in technology (d) Both (b) and (c)
17. Depreciation reserve fund is needed for:
(a) inventory stock (b) advertisement
(c) replacement investment (d) none of these
18. A stock variable:
(a) has no time dimension (b) is a static concept
(c) both (a) and (b) (d) none of these
19. A quantity measured per unit of time period is known as:
(a) stock variable (b) flow variable
(c) inventory (d) none of these
20. 'Income of the family' is the example of which variable?
(a) Stock (b) Flow
(c) Both stock and flow (d) Neither stock nor flow
21. Which of the following is a stock variable?
(a) Interest on capital (b) Distance between Delhi and Manali
(c) Expenditure of money (d) All of these
22. Which of the following is not a flow variable?
(a) Income (b) Capital formation
(c) Supply of money in a country (d) Leakage of water from the overhead tank
23. A car running between Delhi and Agra at a speed of 120 km/h includes:
(a) only stock variables (b) only flow variables
(c) both a stock and a flow variable (d) none of these
24. Factor services rendered by the households to the firms lead to:
(a) real flow (b) money flow
(c) services flow (d) both (a) and (c)
25. Reason for the circular flow of income is:
(a) government intervention
(b) production of goods and services

- (c) mutual interdependence of producer and household sector
- (d) invention of money

Answers

1. (c) 2. (d) 3. (d) 4. (b) 5. (d) 6. (c) 7. (c) 8. (d) 9. (a) 10. (b)
 11. (c) 12. (b) 13. (a) 14. (a) 15. (b) 16. (d) 17. (c) 18. (c) 19. (b) 20. (b)
 21. (b) 22. (c) 23. (c) 24. (a) 25. (c)

B. Fill in the Blanks

Choose appropriate word and fill in the blank:

1. _____ goods are those goods which have crossed the boundary line of production and are ready for use by their final users. (Final/Intermediate)
2. In the estimation of national income, only the value of _____ goods is taken into account. (intermediate/final)
3. In the classification of a good as an intermediate good or final good, only its _____ is taken into consideration. (initial-use/end-use)
4. _____ is the year during which production of goods and services is estimated in the domestic economy. (Accounting year/Calendar year)
5. Durable consumption goods have relatively _____ value than the single-use consumption goods. (high/low)
6. Electric goods are an example of _____ consumption goods. (semi-durable/durable)
7. Non-durable consumption goods are also known as _____ consumption goods. (dual-use/single-use)
8. Higher production of _____ goods leads to higher level of welfare of the economy. (consumption/capital)
9. _____ refers to the production of capital goods during the year. (Gross investment/Net investment)
10. _____ enhances production capacity in the economy. (Gross investment/Net investment)
11. Only _____ obsolescence is considered for the estimation of depreciation. (expected/unexpected)
12. _____ refers to the loss of value of fixed assets while they are not in use. (Consumption of fixed capital/Capital loss)
13. A stock is a variable measured _____ of time. (over a period/at a point)
14. Loss of value of fixed assets owing to unexpected obsolescence is called _____. (capital loss/depreciation)
15. _____ refers to the flow of money across different sectors of the economy. (Money flow/Real flow)

Answers

1. Final 2. final 3. end-use 4. Accounting year 5. high
 6. semi-durable 7. single-use 8. consumption 9. Gross investment
 10. Net investment 11. expected 12. Capital loss 13. at a point
 14. capital loss 15. Money flow

C. True or False

State whether the following statements are True or False:

1. Expenditure on final producer goods by the producers is called investment expenditure. (True/False)
2. Value of intermediate good ultimately becomes a part of final goods. (True/False)
3. The distinction between final goods and intermediate goods depends upon the initial-use of the goods. (True/False)
4. Goods that are used-up in a single act of consumption are called non-durable consumption goods. (True/False)
5. Inventory investment raises the production capacity of the producers. (True/False)
6. The stock of raw material is significant because it ensures uninterrupted supply of raw materials to the producers. (True/False)
7. Gross investment = Net Investment – Depreciation. (True/False)
8. Expected obsolescence refers to a fall in the value of fixed assets due to natural calamities or economic recession. (True/False)
9. Consumption of fixed capital is managed through depreciation reserve fund. (True/False)
10. A flow is a quantity that is measured at a particular point of time. (True/False)
11. Stock impacts the flow: greater the stock of capital, greater is the flow of goods and services. (True/False)
12. Stock of man-made goods which are used for further production is called capital formation. (True/False)
13. Circular flow of income refers to the unending flow of the activities of production, income generation and expenditure involving different sectors of the economy. (True/False)
14. Value Addition = Value of output – Expenditure on intermediate goods and services. (True/False)
15. There is no government in the two-sector economy of consumers and producers. (True/False)

Answers

1. True 2. True 3. False 4. True 5. False 6. True 7. False 8. False 9. True 10. False
 11. True 12. False 13. True 14. True 15. True

D. Matching the Correct Statements

I. From the set of statements given in Column I and Column II, choose the correct pair of statements:

Column I	Column II
(a) Intermediate goods	(i) Shirts purchased by firm X from firm Y for final consumption
(b) Final goods	(ii) Have crossed the boundary line of production
(c) Higher production of capital goods	(iii) Higher level of welfare of the people
(d) Gross investment	(iv) Net addition to the existing capital stock
(e) Monetary expenditure	(v) A stock concept

Answer

- (b) Final goods—(ii) Have crossed the boundary line of production

II. Identify the correct sequence of alternatives given in Column II by matching them with respective items in Column I.

Column I	Column II
(a) Cement production	(i) Raises productive capacity of the producers
(b) Final goods	(ii) Resold by the firms for profit during the accounting year
(c) Fixed investment	(iii) Fixed assets of the producers
(d) Intermediate goods	(iv) Included in the estimation of national product
(e) Capital goods	(v) A flow variable

Answers

(a)—(v), (b)—(iv), (c)—(i), (d)—(ii), (e)—(iii)

E. 'Very Short Answer' Objective Type Questions

1. **What are final goods?**
 Ans. Final goods are those goods which have crossed the boundary line of production and are ready for use by their final users.
2. **Define intermediate goods.**
 Ans. Intermediate goods are those goods which are within the boundary line of production and not ready for use by their final users.
3. **Define intermediate consumption.**
 Ans. Intermediate consumption refers to expenditure by the producers on the purchase of intermediate goods.
4. **Give two examples of final goods.**
 Ans. (i) Pens used by students, and
 (ii) Milk used by households.
5. **Give two examples of intermediate goods.**
 Ans. (i) Paper used by a publisher in book-printing, and
 (ii) Milk used by a confectioner in making chocolates.
6. **What do you mean by consumption goods?**
 Ans. Consumption goods (also known as consumer goods) are those goods which are directly used for the satisfaction of human wants. **Example:** Ice cream and milk used by the households.
7. **Define single-use consumer goods or non-durable consumer goods.**
 Ans. Single-use or non-durable consumer goods are those goods which cannot be repeatedly used for purpose of consumption.
8. **What are semi-durable consumer goods?**
 Ans. Semi-durable consumer goods are those goods which can be used for a period of one year or slightly more. These are not of very high value.
9. **What is meant by producer goods?**
 Ans. Producer goods are those goods which are used for further production. These may be used either as raw material (like wood used in making chairs) or as fixed assets (like a tractor used in farming).
10. **What is meant by capital goods?**
 Ans. Capital goods are those goods which are used in the process of production for several years and which are of high value. These goods are fixed assets of the producers.

11. What is investment?

Ans. Investment is a process of increase in the stock of capital.

12. What is fixed investment?

Ans. Fixed investment refers to increase in the stock of fixed assets or capital goods (like plant and machinery) of the producers during an accounting year.

13. What do you mean by inventory investment?

Ans. Change in inventory stock during the year is called inventory investment of the producers.

14. What is gross investment?

Ans. Gross investment is the expenditure incurred by the producers on the purchase of capital goods during an accounting year. It includes: (i) net investment, and (ii) replacement investment (or depreciation).

15. What is net investment?

Ans. Net investment is the expenditure incurred by the producers on the purchase of such capital goods which lead to increase in his capital stock.

16. What is meant by consumption of fixed capital?

Ans. Consumption of fixed capital or depreciation refers to loss of value of fixed assets in use on account of: (i) normal wear and tear, (ii) accidental damages, and (iii) expected or foreseen obsolescence.

17. Define depreciation reserve fund.

Ans. Depreciation reserve fund is a provision of funds to cope with depreciation losses. These funds are used for the replacement of fixed assets when these are worn-out or when these become obsolete/outdated.

18. Define capital loss.

Ans. Capital loss is a loss of value of fixed assets while these are not in use. It occurs on account of: (i) natural calamities, and (ii) fall in market value of the assets during periods of economic recession.

19. What is current replacement cost?

Ans. Current replacement cost refers to the estimated value of depreciation for all the producing units in the economy during the period of an accounting year.

20. Define stock.

Ans. Stock is that quantity of an economic variable which is measured at a particular point of time.

21. Define flow.

Ans. Flow is that quantity of an economic variable which is measured during the period of time.

22. Give two examples of stock.

Ans. (i) Wealth, and
(ii) Quantity of money.

23. Give two examples of flow.

Ans. (i) Consumption, and
(ii) Investment.

24. Name the four sectors of the economy.

Ans. The four sectors of the economy are: (i) Household sector, (ii) Producer sector, (iii) Government sector, and (iv) The External (Rest of the world) sector.

25. What is meant by circular flow of income?

Ans. Circular flow of income refers to unending flow of the activities of production, income generation and expenditure involving different sectors of the economy, producers and households in particular.

26. Define real flow.

Ans. Real flow refers to the flow of factor services from the household sector to the producing sector and the corresponding flow of goods and services from the producing sector to the household sector.

27. Define money flow.

Ans. Money flow refers to the flow of money across different sectors of the economy. Because, each sector buys goods and services from the other sector.

2. Reason-based Questions (Comprehension of the Subject-matter)

Read the following statements carefully. Write True or False with a reason.

1. No value is to be added to the final goods.

Ans. True. Because these goods have crossed the boundary line of production and are ready for use by the final users.

2. Intermediate goods are durable-use producer goods.

Ans. False. Because intermediate goods are not repeatedly used for several years by the producers and are not of high value.

3. Final goods must finally be consumed by the households.

Ans. False. Final goods can finally be consumed by the households as well as by the producers.

4. Vegetables used by the households are consumption goods.

Ans. True. Because, vegetables are directly used for the satisfaction of human wants.

5. Only final goods and services are to be considered in the estimation of GDP, to avoid double counting.

Ans. True. Only final goods and services are to be considered to avoid double counting in the estimation of GDP. Because, final goods and services do not require further value addition. These are outside the boundary line of production.

6. Purchase of a refrigerator by a firm for its own use is included in the estimation of national income because it leads to final consumption expenditure.

Ans. False. Purchase of a refrigerator by a firm for its own use is included in the estimation of national income because it leads to final investment expenditure.

7. Capital goods involve loss of value on account of their depreciation.

Ans. True. Capital goods are fixed assets of the producers. They depreciate in value as these are repeatedly used in the process of production.

8. The same good may be a consumption good or capital good, depending on its end-use.

Ans. True. Example: Car purchased by the household is a consumer (or consumption) good, while the car purchased by a tourist company is a capital good.

9. Clothes used by the households are durable consumer goods.

Ans. False. Clothes used by the households are semi-durable consumer goods. Because (i) clothes are used for a period of one year or slightly more, and (ii) these are not of very high value.

10. Gross investment may occur even when net investment is zero.

Ans. True. $\text{Gross investment} = \text{Net investment} + \text{Depreciation}$.

$\text{Gross investment} = \text{Depreciation} (= \text{Replacement Investment})$, when net investment = 0.

11. Gross investment includes the value of expected obsolescence.

Ans. True. $\text{Gross investment} = \text{Net investment} + \text{Depreciation}$. And, expected obsolescence is a part of depreciation.

12. Net investment always implies an increase in the stock of capital.

Ans. True. Net investment always implies increase in the stock of capital. Because, it does not include replacement investment.

13. Net investment induces employment.

Ans. True. Because net investment leads to increase in the stock of capital. And, more labour can be employed when the stock of capital increases.

14. Inventory investment includes change in stock of consumer goods with the producers.

Ans. True. Inventory investment includes stock of all types of goods (including consumer goods) with the producers.

15. Depreciation may occur even when fixed assets are not in use.

Ans. False. Depreciation is the loss of value of fixed assets (capital goods) in use, on account of their normal wear and tear.

16. Expected obsolescence is a 'capital loss'.

Ans. False. Unexpected obsolescence is a 'capital loss'.

17. Obsolescence is a part of depreciation.

Ans. True. But only expected obsolescence is to be considered as a part of depreciation.

18. Stocks do not change over time, while flows do.

Ans. False. Both stocks as well as flows tend to change over time.

19. Inventory investment refers to change in stock and is, therefore, a stock variable.

Ans. False. Inventory investment is a flow concept because it is related to a period of time.

20. Income is a stock concept.

Ans. False. It is a flow concept. Because it is related to a period of time.

21. Population of a country is a flow concept.

Ans. False. Population of a country is a stock concept because it is related to a point of time.

22. Flow of goods and services across different sectors of the economy is money flow.

Ans. False. Flow of goods and services across different sectors of the economy is real flow.

23. Double counting occurs when the both final and intermediate goods are included in the estimation of GDP.

Ans. True. Because, GDP includes only final goods.

3. HOTS & Applications

1. Giving reasons, classify the following into intermediate goods and final goods:

(i) Machine purchased by a dealer.

(ii) A car purchased by a household.

Ans. (i) Machine purchased by a dealer is an intermediate good because a dealer purchase a machine for further sale to its final users.

(ii) A car purchased by a household is a final good because the household is the final user of the car and no value is to be added to the car.

2. Classify the following goods into intermediate goods and final goods:

(i) Milk purchased by a household.

(ii) Purchase of rice by a grocery shop.

(iii) Purchase of an air conditioner for use in shop.

(iv) Cloth used for making a sofa-set by the carpenter.

Ans. (i) Milk purchased by a household is a final good because milk directly satisfies the wants of the household(s) or the consumer(s).

(ii) Purchase of rice by a grocery shop is an intermediate good because rice is purchased for resale to its final users.

(iii) Purchase of an air conditioner for use in shop is a final good because air conditioner is an investment expenditure as it adds to the capital stock of the shopkeeper.

(iv) Cloth used for making a sofa-set by the carpenter is an intermediate good as it is used as a raw material.

3. State whether the following statements are true or false. Give reasons for your answer:
- Capital formation is a flow.
 - Bread is always a consumer good.
- Ans. (i) The statement is true. Because capital formation is measured per unit of time period.
- (ii) The statement is false. Because it depends on the end-use of the bread whether it is a producer good or a consumer good. It is a consumer good when used by the households. It is a producer good when used by a snacks-bar to make sandwiches.
4. A kind of goods used as intermediary goods can never be final goods. Defend or refute.
- Ans. The given statement is incorrect. The same good may be a final good or an intermediate good. It all depends on the end-use of the goods. **Example:** Sugar is a final good when used by households. It is an intermediate good when used by candy-makers.
5. If depreciation reserve fund is not maintained, production capacity in the economy would tend to reduce. Do you agree?
- Ans. Yes, the above statement is correct. If depreciation reserve fund is not maintained, production capacity in the economy would tend to reduce. Because depreciation reserve fund facilitates replacement investment (replacement of worn-out assets).
6. State the two basic principles of circular flow of income and product.
- Ans. The circular flow of income and product works on two basic principles:
- Money flows are opposite to the real flows (in terms of goods and services).
 - Flow of income across different sectors always implies the identity between payments and receipts.
7. With money as a medium of exchange, only money flows prevail in the economy, not the real flows. Is it true?
- Ans. No, this is false. Money flows are only reciprocal of real flows. Real flows (flow of goods and services) are the essence of consumption and production activities in the economy.
8. Should purchase of wheat in the wholesale market be treated as the purchase of final good?
- Ans. Purchase of wheat in the wholesale market is often done by the traders. Wheat is a consumption good and traders are not the final users of wheat. Therefore, purchase of wheat in the wholesale market is to be treated as the purchase of intermediate good.
- However, sometimes the households buy wheat in bulk from wholesale market. In such situations, purchase of wheat should be treated as purchase of final good.
9. Purchase of shares of Reliance company by the households in India is not to be treated as investment in the economy. Justify.
- Ans. In economics, investment refers to capital formation. It must lead to increase in the stock of capital in the economy. Purchase of shares of the Reliance company by the households in India does not lead to capital formation. It only causes change in the title of ownership of assets from one set of persons to the other.
10. All machines are not capital goods. Justify.
- Ans. The end-use of the machine determines whether it is a capital good or not. Capital goods are those fixed assets of the producers which are used in the process of production for several years and which are of high value. Therefore, only those machines which are used in the process of production are considered to be capital goods. Those machines which are used by the households are not capital goods. **Example:** Computer used at home is a durable-use consumer good, but a computer used in the computer coaching class is a capital good.
11. 'Lower capital formation leads to lower rate of GDP growth.' Comment.
- Ans. Lower capital formation implies slower rise in production capacity of the economy. When production capacity rises at a slow rate, output is bound to rise at a slow rate. Slow rise in output implies a slow rise in GDP.

12. Only net investment and not gross investment shows change in stock of capital. Defend or refute.
Ans. The statement is true. Gross investment includes expenditure on the purchase of new assets which causes change in the stock of capital and expenditure on the replacement of worn-out assets which does not cause change in stock of capital. Thus, from gross investment, we cannot estimate net addition to the stock of capital. It is only indicated by the net investment.

13. Market value of your car at the time of purchase in 2017 was ₹ 5,50,000. In 2019, its market value is estimated to be ₹ 3,50,000.

What do you think is the reason for the fall in the value of the car?

- (a) Normal wear and tear
- (b) Accidental damages that the car might have suffered
- (c) Unexpected obsolescence
- (d) Both (a) and (b)

Ans. (d) Both normal wear and tear and the accidental damages that the car might have suffered, are the reasons for the fall in the value of the car.

4. Analysis & Evaluation

1. As a student of economics, how would you distinguish between capital goods and capital stock?

Ans. Capital goods are the durable-use producer goods and involve depreciation losses while in use. Example: Plant and machinery.

Capital stock is the stock of all man-made goods which can be used as a means for further production.

Capital goods are only a part of capital stock. Besides capital goods, capital stock also includes the stock of consumer goods, semi-finished goods or even raw material which can be used for purpose of further production or value addition. Example: Stock of wheat with the flour mill is a part of its inventory stock, and therefore, a part of its capital stock.

2. Describe the economic value of the distinction between gross investment and net investment.

Ans. Gross investment includes: (i) net investment, and (ii) replacement investment. Replacement investment is funded through depreciation reserve fund. Because, this investment is exactly equal to depreciation losses. Thus, replacement investment just restores the value of fixed assets (which is lost on account of their depreciation). It does not lead to any increase in capital stock (or production capacity) of the producers.

Net investment, on the other hand, is an investment that leads to increase in capital stock of the producers. It causes increase in their production capacity.

Since net investment is related to increase in production capacity of the producers, we can say that it is net investment (not replacement investment) which is needed to accelerate the pace of growth and development.

Briefly, replacement investment helps maintain the existing level of GDP. Net investment leads to a shift in the GDP level, indicating growth and prosperity.

3. The government asserts that MGNREGA (Mahatma Gandhi National Rural Employment Guarantee Act) is to be related to asset creation. How do you evaluate this statement?

Ans. MGNREGA is a social welfare scheme launched by the Government of India. It is to provide a guaranteed job for 100 days to the people in the rural areas. It has been observed over time that this scheme has led to huge government expenditure. But most of it has remained unproductive: employment generation has not led to proportionate asset formation or capital formation (in terms of the construction of roads, dams or canals). It is now being emphasised that there must be asset formation along with generation of employment. It implies that net capital formation (in the economy) must also increase along with increase in employment.

5. CBSE Questions—Past 5 years (With Answers or Reference to the Text for Answers)

1. Depreciation of fixed capital assets refers to: (choose the correct alternative) [CBSE Delhi 2016]
(a) normal wear and tear
(b) foreseen obsolescence
(c) normal wear and tear and foreseen obsolescence
(d) unforeseen obsolescence
[(c)]
2. Define stocks. [CBSE Delhi 2016]
[Page 27]
3. Define flows. [CBSE (AI) 2016]
Or
Define flow variables. [CBSE 2019 (58/2/1)]
[Page 28]
4. Unforeseen obsolescence of fixed capital assets during production is: (choose the correct alternative) [CBSE (F) 2016]
(a) consumption of fixed capital (b) capital loss
(c) income loss (d) none of the above
[(b)]
5. Define gross investment. [CBSE (F) 2016]
[Page 24]
6. Distinguish between final goods and intermediate goods. Give an example of each. [CBSE Delhi 2017]
[Page 16–18]
7. Explain with the help of an example, the basis of classifying goods into final goods and intermediate goods. [CBSE (AI) 2017]
[Page 18]
8. Explain the circular flow of income. [CBSE (AI) 2017]
[Page 32–35]
9. Distinguish between stocks and flows. Give an example of each. [CBSE (AI) 2017; (F) 2017]
Or
Distinguish between stock and flow variables with suitable examples. [CBSE 2018]
[Page 28]
10. What are capital goods? How are they different from consumption goods? [CBSE 2018]
[Page 19–21]
11. Give any two examples of flow concept. [CBSE 2019 (58/1/1)]
[Page 28]
12. Define 'capital goods'. [CBSE 2019 (58/5/1)]
[Page 20]

6. NCERT Questions (With Hints to Answers)

1. Describe the four major sectors in an economy according to the macroeconomic point of view.
[Hint: An economy is generally classified into the following four sectors:
(i) Household sector, engaged in the consumption of goods and services.
(ii) Producer sector, engaged in the production of goods and services.

- (iii) Government sector, engaged in such activities which are related to taxation and subsidies.
 - (iv) Rest of the world sector, engaged in exports and imports.]
2. Distinguish between stock and flow. Between net investment and capital, which is a stock and which is a flow? Compare net investment and capital with water in a tank.
- [Hint: Stock is that quantity of an economic variable which is measured at a particular point of time. Stock has no time dimension. Flow is that quantity of an economic variable which is measured during the period of time. Flow has time dimension as per hour, per day, per month.
- Net investment is a flow variable and capital is a stock variable. Flow of water in a tank is flow because it is measured per unit of time period. Whereas, stock of water in a tank is stock because it is measured at a point of time. Capital is like a stock of water in the tank at a point of time. Investment on the other hand, is like a flow of water in the tank.]

7. Miscellaneous Questions and Reference to the Text for Answers

A. Questions of 3 & 4 marks each

1. Explain the concept of intermediate goods. [Page 16, 17]
2. Explain the concept of final goods. [Page 16]
3. Distinguish between intermediate product and final product. [Page 18]
4. Distinguish between final consumer goods and final producer goods. [Page 16]
5. Distinguish between consumption goods and capital goods. Which of these are final goods? [Page 21]
6. All capital goods are producer goods. Why? [Page 20]
7. Classify the following goods in durable and non-durable goods and services:
(i) Clothes, (ii) Refrigerator, (iii) Edible oil, (iv) Furniture, (v) Washing machine, (vi) Tuition by a teacher, (vii) Visit to patient by the doctor, (viii) Washing soap, (ix) Colgate toothpaste, and (x) Television. [Page 19, 20]
8. State whether the following is a stock or a flow:
(i) Wealth, (ii) Cement production, (iii) Money supply or quantity of money in the nation, and (iv) Change in nation's money supply. [Page 27–29]
9. Explain the classification of consumption goods. [Page 19, 20]
10. Differentiate between gross investment and net investment. [Page 25]
11. Why is it necessary to make a depreciation reserve fund? [Page 26]
12. Why are money flows opposite to real flows? [Page 32]
13. State the significance of circular flow model. [Page 35]

B. Questions of 6 marks each

1. Distinguish between intermediate and final goods and explain the importance of this distinction in the study of national income. [Page 18, 49, 50]
2. What is meant by investment? Explain its various types. [Page 22–25]
3. Distinguish between stock and flow variables with examples. [Page 27, 28]
4. Explain (i) how income is a flow, and (ii) how the flow of income is circular?
[Hint: Income is a flow concept because it is measured per unit of time period, viz., income per month or per annum. Flow of income is circular because, stemming from the production of goods and services by the producing units, it translates into income of the households (as rewards for their factor services to the producing units), and income translates into expenditure on the goods and services produced in the economy. Thus, production (value addition), income generation and expenditure propel each other to form a circularity, which is called 'Circularity of Income'.]

5. Between 'investment' and 'capital', which is a stock and which is a flow variable? Explain with an illustration.

[Hint: (With Illustration) Capital is a stock variable as it is measured at a point of time. We often find producers estimating their capital stock at the end of the year, which refers to a point of time or a particular date.

Investment, by definition, means addition to the stock of capital during an accounting year. It is measured for the year. If a firm has a stock of 10 machines as on March 31, 2018, and has 15 machines as on March 31, 2019, it has added 5 machines to the stock of its capital during the year. This is its investment.]

DOs and DON'Ts

1. The students must understand that the expenditure incurred by a producer/firm on the routine repair and maintenance of fixed assets is not to be treated as a part of depreciation. Such an expenditure is treated as a part of 'intermediate consumption'. **Example:** Consider a tourist company operating a fleet of 10 cars. These cars are taken to the service station, (say) after every 6 months for their routine maintenance. The expenditure, thus, incurred by the firm is not to be treated as depreciation. It is to be treated as expenditure on repair and maintenance. And, all expenditure on 'repair and maintenance' is considered as a part of 'intermediate consumption'.

For this tourist company, depreciation would be estimated as the loss of value of the cars (in use) over a period of time. If a car lasts for 5 years and its purchase value is equal to ₹ 5 lakh, then depreciation may be estimated approximately as ₹ 1 lakh per annum per car. So that the total depreciation on 10 cars would be equal to ₹ 10 lakh per annum.

2. When we talk of the producers, we talk of 'the producing units' in the economy. It is the producing units which hire/purchase factors of production from their owners. The households are the owners of factors of production. The households sell/supply factors of production (land, labour, capital and entrepreneurial skill) to the firms. As rewards for the use of factors of production (also called factor services), the firms make payments to the households: rent is paid for the use of land, interest for the use of capital, wages for the use of labour and profit for the use of entrepreneurial skill. Briefly, factor payments are received by the owners of factors of production (the households) and made by the users of factors of production (the firms).



• Significance of the Distinction between Intermediate Goods and Final Goods

From the viewpoint of national income estimation, the difference between intermediate goods and final goods is very significant. We know, intermediate goods are those goods which are purchased by one firm from the other either for resale or for use as raw material in the production of other goods and services. When these goods are used as raw material in the production of final goods, the value of intermediate goods is reflected in the value of final goods. To illustrate, firm A bought cloth for ₹ 5,000 to be used as raw material in the production of shirts. The shirts were sold for ₹ 7,000. This value of ₹ 7,000 includes the value of cloth, viz., ₹ 5,000. Therefore, in the calculation of national income, the value of only final goods, that is, shirts of ₹ 7,000 would be included. The value of cloth (₹ 5,000) is the value of intermediate goods (= intermediate cost or intermediate consumption) and hence, will not be

included in national product/national income. If we include the value of intermediate goods also, the value of national product would add up to ₹ 12,000 (₹ 7,000 + ₹ 5,000). It causes double counting. Because, the value of cloth (₹ 5,000) is already included in the value of shirts (₹ 7,000). Thus, in the calculation of national product/national income, the value of only final goods is taken into account.

- **Expansion and Contraction of Circular Flow: Injections and Leakages**

A circular flow (also called circular flow of income) may expand or contract. Expansion of circular flow of income implies a rise in the level of income/output in the economy. Contraction of circular flow, on the other hand, implies a fall in the level of income/output in the economy.

Expansion of circular flow occurs owing to 'injections', while contraction occurs owing to 'withdrawals'.

Injections

These are those macro variables, a rise in the level of which leads to a rise in the level of output in the economy. These include: (i) government consumption expenditure, (ii) government investment expenditure, and (iii) exports (expenditure on domestic product by the foreigners). A rise in the level of any of these variables implies a rise in the level of demand for the goods produced in the domestic economy. This is expected to cause a rise in the level of output in the economy. This is called expansion of circular flow.

Leakages/Withdrawals

These are those macro variables, a rise in the level of which leads to a fall in the level of output in the economy. These include: (i) saving (opposite of consumption), (ii) government taxes (opposite of government investment), and (iii) imports (opposite of exports). A rise in the level of any of these variables implies a fall in the level of demand for the domestically produced goods. This leads to a fall in the level of output in the economy. This is called contraction of circular flow.

The circular flow of income remains stable if 'leakages' are exactly equal to 'injections'.

- **Why does the Circular Flow of Money never Stop?**

This may be explained in terms of the 'twin demand-supply relationship' between producers and the households. Households will always demand goods and services from the producers, and will always supply them their factor services. It is by selling their factor services that the households earn money to buy goods and services. On the other hand, producers will always demand factor services from the households, and will always supply them the goods and services. It is only by selling the goods and services to the households that the producers earn money to buy factor services. This 'twin demand-supply relationship' will never cease to exist, as it is related to the very survival of human beings. Accordingly, the circular flow of money never stops.



NATIONAL INCOME AND RELATED AGGREGATES

TO
DO

- *Concept of National Income*
- *Domestic and National Concepts of Income*
- *Gross and Net Concepts of Domestic Product*
- *Domestic Product at Market Price and at Factor Cost*
- *Aggregates Related to National Income*
- *Nominal and Real GDP*
- *GDP and Welfare*

I. CONCEPT OF NATIONAL INCOME

National income is the sum total of factor incomes earned by normal residents of a country during the period of an accounting year. This definition of national income conveys two important points:

- (i) national income includes **factor incomes only**, and
- (ii) national income includes income of only the **normal residents of a country**.

Let us go deeper into the concepts of (i) factor incomes, and (ii) normal residents.

(I) Factor Incomes

Factor incomes are the payments made by the producing units (firms) to the households (owners of the factors of production) for the use of their factor services.

Factor incomes (or factor payments) are broadly classified as under:

- (i) Compensation of employees (received by the households for rendering their services as employees of the producing units).

- (ii) Rent (received by the households for the use of their land by the producing units).
- (iii) Interest (received by the households for the use of their capital by the producing units).
- (iv) Profit (received by the households for the use of their entrepreneurial skills by the producing units).

In the estimation of national income, we include only these factor incomes (or factor payments).

Factor Incomes are Different from Transfer Incomes

It may be noted that factor incomes are different from transfer incomes. Transfer incomes are those incomes which are received by a person as help, donation or charity, etc., whereas factor incomes are those incomes which are received by the factors of production by rendering their factor services. In other words, while factor income is 'earned income', transfer income is 'unearned income'. Since, transfer incomes are not earned as rewards for rendering factor services, these are not included in the estimation of national income.



National income is the sum total of factor incomes. Transfer incomes are not included in the estimation of national income as these are not earned as rewards for rendering factor services.

(2) Normal Residents

Who are normal residents of a country?

A normal resident is said to be one (i) who **ordinarily** resides in the country concerned, and (ii) whose centre of **economic interest** lies in that country. Here, note these observations carefully:

- (i) A person residing in a country for a period of one year (or more) is taken as 'ordinarily residing' in that country. This person may or may not be the citizen of that country.
- (ii) A person is said to have his **economic interest** in a country when he carry out all his economic activities such as production, consumption or investment in that country.

(Check the Focus Zone for certain examples on residents and non-residents of a country.)

Normal Residents and Non-residents—Some Examples

Normal Residents of India	Non-residents of India
(i) Indians working in foreign embassies in India.	(i) Foreigners working in Indian embassies in Canada and Japan.
(ii) Indians employed in World Health Organisation located in India.	(ii) Foreigners working in World Health Organisation located in India.
(iii) Local people working in the office of International Monetary Fund in India.	(iii) The German working as Director of the office of International Monetary Fund located in India.
(iv) Ambassador for India in rest of the world.	(iv) Ambassador in India from rest of the world.
(v) The foreign citizens living in India for a period of more than one year (other than those for studies or medical treatment).	(v) The foreign technical experts working in India for a period of less than one year.
National income includes income of only the normal residents of a country. It does not include income of the non-residents, even when they happen to be the citizens of our country.	



2. DOMESTIC AND NATIONAL CONCEPTS OF INCOME

At the macro level, the concept of income is used both as a domestic concept and a national concept. When used as a domestic concept, we call it domestic income, and when used as a national concept, we call it national income. Both domestic income and national income include the four basic elements of factor income, viz., (i) compensation of employees, (ii) rent, (iii) interest, and (iv) profit. But there is a difference. It is as this:

Domestic income is the sum total of factor incomes (compensation of employees + rent + interest + profit) **generated within the domestic territory of a country** (no matter who generates it: normal residents or non-residents).

National income is the sum total of factor incomes (compensation of employees + rent + interest + profit) earned by **normal residents** of a country (**no matter where it is generated: within the domestic territory or outside**).

Here, it becomes important to understand the concept of domestic territory of a country.

Domestic Territory of a Country

In common language, the domestic territory of a country is understood to mean political territory of a nation. But, in economics, it refers

to 'economic territory' which is a much wider concept than political territory. According to **United Nations**, "Economic territory is the geographical territory administered by a government within which persons, goods and capital circulate freely." **Do we have this freedom of circulation (of persons, goods and capital) in the embassies of foreign countries located in India?** No should be the answer. **Do we have this freedom of circulation (of persons, goods and capital) in Indian embassies located abroad?** Yes should be the answer. Implying that, foreign embassies located in India are not a part of domestic/economic territory of India. On the other hand, Indian embassies located abroad are a part of domestic/economic territory of India. Thus, while defining the term domestic territory, the focus is NOT to be on political boundaries of a nation. The focus is to be on such a geographical area where our persons, our goods and our capital enjoy the freedom of circulation. [see Ability Zone for the components of domestic territory.]

Did You Know?

1. Domestic income of a country includes factor incomes of both the residents and non-residents working within the domestic territory of a country.
2. Net factor income from abroad is the difference between (i) factor income earned by our residents who are temporarily residing abroad, and (ii) factor income earned by non-residents who are temporarily residing in our country.

Conversion of Domestic Income into National Income

Domestic income is the sum total of factor incomes generated within the domestic territory of a country during the period of an accounting year. It includes factor income of both the residents as well as non-residents in the domestic territory of a country. It needs emphasis that:

- (i) our domestic income does include factor income earned by non-residents within the domestic territory of our country,
- (ii) our domestic income does not include factor income earned by our residents from the domestic territories of other countries.

Accordingly, domestic income becomes national income provided:

- (i) we exclude from domestic income that part of factor income which belongs to non-residents within our domestic territory, and
- (ii) we add to domestic income that part of factor income which our residents earn from rest of the world (or from the domestic territories of other countries).

FOCUS ZONE

Conversion of Domestic Income into National Income

$Domestic\ income + Net\ factor\ income\ from\ abroad = National\ Income$

Here, $Net\ factor\ income\ from\ abroad$

$= Factor\ income\ earned\ by\ our\ residents\ from\ rest\ of\ the\ world$

$- Factor\ income\ earned\ by\ non-residents\ in\ our\ domestic\ territory$

For **converting national income into domestic income**, we use the following equation:

$National\ income - Net\ factor\ income\ from\ abroad = Domestic\ Income$

Domestic Income and Domestic Product are Identical Concepts [Domestic Income \equiv Domestic Product]

There is no difference between the concepts of 'domestic income' and 'domestic product'. In fact, the two terms are identical to each other. Because, all production is ultimately converted into factor incomes. In the first round, the firms produce goods by hiring/purchasing factors of production from the households. In the second round, the firms distribute their revenue (from the sale of final goods) among the owners of the factors of production (households). The households are paid (i) compensation of employees (for labour), (ii) rent (for land), (iii) interest (for capital), and (iv) profit (for entrepreneurial skill). Thus, domestic income (the sum total of factor incomes) is obviously equal to domestic product. We can write that:

$$\text{Domestic Income} \equiv \text{Domestic Product}$$

Accordingly, the equation that:

Domestic income + Net factor income from abroad = National Income
can also be written as:

Domestic product + Net factor income from abroad = National Product



Q. Write two observations indicating the difference between domestic income and national income.

Ans. Following observations indicate the difference between domestic income and national income:

Domestic Income (NDP_{FC})	National Income (NNP_{FC})
(i) It is the sum total of factor incomes generated within the domestic territory of a country, no matter who generates this income—residents or non-residents.	(i) It is the sum total of factor incomes accruing to normal residents of a country, no matter where this income is generated—within the domestic territory or in rest of the world.
(ii) It does not include net factor income from abroad.	(ii) It includes net factor income from abroad.

3. GROSS AND NET CONCEPTS OF DOMESTIC PRODUCT

Domestic product is measured as (i) Gross Domestic Product (GDP) or (ii) Net Domestic Product (NDP).

Depreciation (Consumption of Fixed Capital) causes the difference between the two. While GDP includes depreciation, NDP does not.

Thus,

$$\text{GDP (Gross Domestic Product)} - \text{Depreciation} = \text{NDP}$$

Or

$$\text{NDP (Net Domestic Product)} + \text{Depreciation} = \text{GDP}$$

Likewise,

$$\text{GNP (Gross National Product)} - \text{Depreciation} = \text{NNP}$$

Or

$$\text{NNP (Net National Product)} + \text{Depreciation} = \text{GNP}$$

4. DOMESTIC PRODUCT AT MARKET PRICE AND AT FACTOR COST

There is no difference between domestic product at market price and domestic product at factor cost so long as we are considering a two sector economy including: (i) producer sector, and (ii) household sector and there is no 'government sector' in the economy (implying that there are no taxes or subsidies related to the production of goods and services).

Domestic product at market price is identical with domestic product at factor cost, provided there is no government and there are no taxes and subsidies related to the production of goods and services in the economy.

Once, the government sector is introduced, taxes and subsidies start playing their role, and domestic product at market price and domestic product at factor cost become different aggregates. This is how it happens:

- Taxes on goods (called indirect taxes) tend to raise the market price of the goods. Accordingly, domestic product at market price is increased.
- Subsidies tend to lower the market price of the goods. Accordingly, domestic product at market price is reduced.
- To restore the parity between domestic product at market price and domestic product at factor cost:
 - (i) we deduct the value of indirect taxes from domestic product at market price, and
 - (ii) we add the value of subsidies to domestic product at market price.

It is with this adjustment that the two aggregates become equal.

Thus, 'domestic product at market price' and 'domestic product at factor cost' are related to each other as in the following equations:

Domestic product (gross/net) at market price

– Net indirect taxes

= Domestic Product (gross/net) at factor cost

[**Note:** Net indirect taxes = Indirect taxes – Subsidies]

Likewise, we can write that,

National product (gross/net) at market price

– Net indirect taxes

= National Product (gross/net) at factor cost

5. AGGREGATES RELATED TO NATIONAL INCOME

We now give a brief description of the various aggregates related to national income, as under:

(1) Gross Domestic Product at Market Price [GDP_{MP}]

Gross domestic product at market price is the market value of final goods and services produced within the domestic territory of a country during the period of an accounting year, **inclusive of depreciation**.

(2) Net Domestic Product at Market Price [NDP_{MP}]

Net domestic product at market price is the market value of the final goods and services produced within the domestic territory of a country during the period of an accounting year, **exclusive of depreciation**.

Relating (1) and (2), we can write that:

$$GDP_{MP} = NDP_{MP} + \text{Depreciation}$$

and

$$NDP_{MP} = GDP_{MP} - \text{Depreciation}$$

(3) Gross National Product at Market Price [GNP_{MP}]

Gross national product at market price is the sum total of gross domestic product at market price and net factor income from abroad.

$$GNP_{MP} = GDP_{MP} + \text{Net factor income from abroad}$$

(4) Net National Product at Market Price [NNP_{MP}]

Net national product at market price is the sum total of net domestic product at market price and net factor income from abroad.

$$NNP_{MP} = NDP_{MP} + \text{Net factor income from abroad}$$

(5) Gross Domestic Product at Factor Cost [GDP_{FC}]

Gross domestic product at factor cost is the sum total of factor cost incurred on the production of final goods and services within the domestic territory of a country (during an accounting year), inclusive of depreciation.

$$GDP_{FC} = \text{Compensation of employees} + \text{Rent} + \text{Interest} + \text{Profit} + \text{Depreciation}$$

(6) Net Domestic Product at Factor Cost [NDP_{FC}] Or Net Domestic Income

Net domestic product at factor cost is the sum total of factor cost incurred on the production of final goods and services with the domestic territory of a country, during an accounting year.

$$NDP_{FC} = \text{Compensation of employees} + \text{Rent} + \text{Interest} + \text{Profit}$$

Relating (5) and (6), we can write that:

$$GDP_{FC} = NDP_{FC} + \text{Depreciation}$$

and

$$NDP_{FC} = GDP_{FC} - \text{Depreciation}$$

(7) Gross National Product at Factor Cost [GNP_{FC}]

Gross national product at factor cost is the sum total of gross domestic product at factor cost and net factor income from abroad.

$$GNP_{FC} = GDP_{FC} + \text{Net factor income from abroad}$$

(8) Net National Product at Factor Cost [NNP_{FC}]

Net national product at factor cost is the sum total of net domestic product at factor cost and net factor income from abroad.

$$NNP_{FC} = NDP_{FC} + \text{Net factor income from abroad}$$

We know that,

$$NDP_{FC} = \text{Compensation of employees} + \text{Rent} + \text{Interest} + \text{Profit}$$

Accordingly,

$$NNP_{FC} = \text{Compensation of employees} + \text{Rent} + \text{Interest} + \text{Profit} + \text{Net factor income from abroad}$$

Following table sums up how various aggregates of national income are related to each other.

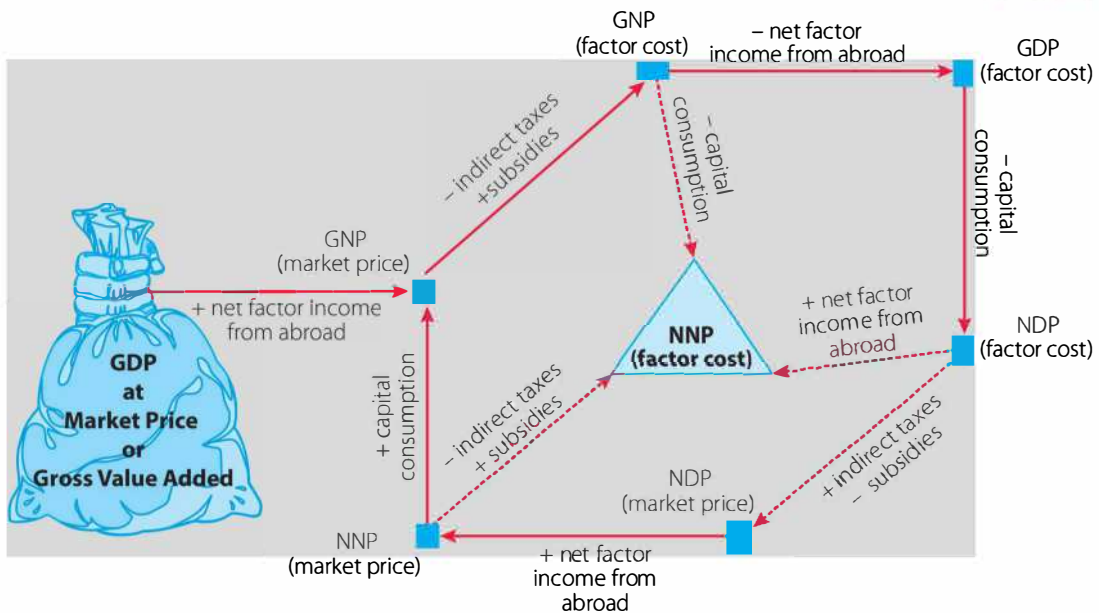
Aggregates Related to National Income—A Glance

1. Gross Domestic Product at Market Price (GDP_{MP})	=	Market value of final goods and services produced within the domestic territory of a country in an accounting year
2. Net Domestic Product at Market Price (NDP_{MP})	=	GDP_{MP} – Depreciation or Consumption of fixed capital
3. Gross National Product at Market Price (GNP_{MP})	=	GDP_{MP} + Net factor income from abroad
4. Net National Product at Market Price (NNP_{MP})	=	GNP_{MP} – Depreciation
5. Gross Domestic Product at Factor Cost (GDP_{FC})	=	GDP_{MP} – Indirect taxes + Subsidies
6. Net Domestic Product at Factor Cost or Net Domestic Income (NDP_{FC})	=	GDP_{FC} – Depreciation
7. Gross National Product at Factor Cost (GNP_{FC})	=	GDP_{FC} + Net factor income from abroad
8. Net National Product at Factor Cost or National Income (NNP_{FC})	=	GNP_{FC} – Depreciation



See flow chart of these aggregates below:

AGGREGATES RELATED TO NATIONAL INCOME—A FLOW CHART



6. NOMINAL AND REAL GDP

Nominal GDP

It refers to GDP at current prices. It is the market value of the final goods and services produced within the domestic territory of a country during an accounting year, as estimated using the current year prices. Current year prices are the prices prevailing during the year of estimation.

Thus:

$$\text{Nominal GDP} = Q \times P$$

Here, Q = Quantity of final goods and services produced during an accounting year
P = Prices prevailing during the accounting year.

The above equation shows that nominal GDP can increase when there is increase in either Q or P. If it increases owing to increase in Q (P remaining constant), it shows increase in nominal GDP owing to increase in output. On the other hand, if it increases owing to increase in P (Q remaining constant), it shows increase in nominal GDP owing to increase in the general price level. It is merely a monetary increase in GDP, and is of little significance. It does not cause any increase in the flow of goods and services in the economy. It only causes 'money illusion'—the illusion of a higher market value of the given output.

Real GDP

It refers to GDP at constant prices. It is the market value of the final goods and services produced within the domestic territory of a country during an accounting year, as estimated using the base year prices. Base year is the year of comparison. It is the year when macro variables (like production and general price level) are believed to be within their normal range.

Thus:

$$\text{Real GDP} = Q \times P^*$$

Here, Q = Quantity of final goods and services produced during an accounting year
P* = Prices prevailing during the base year.

The above equation shows that real GDP increases only when Q increases. Simply because P* is constant. So that when real GDP

Did You Know it?

- When nominal GDP rises, the flow of goods and services in the economy may or may not rise during an accounting year.
- When real GDP rises, the flow of goods and services in the economy must rise during an accounting year.

increases, there is an increase in the flow of goods and services in the economy. Other things remaining constant, higher the level of real GDP, greater should be the availability of goods and services to the residents of a country. Implying that the quality of life should improve.

Table 1 on the estimation of nominal GDP illustrates how nominal GDP can rise even when output is constant.

Table 1. Estimation of Nominal GDP

[Assumptions: (i) The economy produces wheat, cloth and sugar only, and (ii) Output remains constant]

(₹ in crore)

Year	Commodity	Quantity	Price	GDP _{MP} (Nominal)
2011-12	Wheat	20 tonnes	100 per tonne	2,000
	Cloth	100 metres	5 per metre	+ 500
	Sugar	5 tonnes	500 per tonne	+ 2,500
				= 5,000
2018-19	Wheat	20 tonnes	1,000 per tonne	20,000
	Cloth	100 metres	20 per metre	+ 2,000
	Sugar	5 tonnes	1,600 per tonne	+ 8,000
				= 30,000

Thus, nominal GDP rises from ₹ 5,000 crore to ₹ 30,000 crore even when output is constant. Here, rise in nominal GDP is driven exclusively by the rise in price level.

Table 2 on the estimation of real GDP shows that real GDP rises only when output rises.

Table 2. Estimation of Real GDP

[Assumptions: (i) The economy produces wheat, cloth and sugar only, and (ii) Prices remain constant]

(₹ in crore)

Year	Commodity	Quantity	Price	GDP _{MP} (Real)
2011-12	Wheat	20 tonnes	100 per tonne	2,000
	Cloth	100 metres	5 per metre	+ 500
	Sugar	5 tonnes	500 per tonne	+ 2,500
				= 5,000
2018-19	Wheat	30 tonnes	100 per tonne	3,000
	Cloth	200 metres	5 per metre	+ 1,000
	Sugar	10 tonnes	500 per tonne	+ 5,000
				= 9,000

Thus, real GDP rises from ₹ 5,000 crore to ₹ 9,000 crore, even when price level is constant. Here, rise in real GDP is driven exclusively by the rise in output.

FOCUS ZONE

GDP at current prices (also called *monetary GDP* or *nominal GDP*) refers to market value of the final goods and services produced within the domestic territory of a country during an accounting year, as estimated using the current year prices. It may increase without any increase in the quantum of output in the economy.

GDP at constant prices (also called *real GDP*) refers to market value of the final goods and services produced within the domestic territory of a country during an accounting year, as estimated using the base year prices. It increases only when there is increase in the quantum of output in the economy.

The index of real GDP always reflects a change in the level of output, while the index of nominal GDP may or may not. Which is why real GDP is considered as a better index of economic growth than the nominal GDP.

HOTS

Q. Write observations indicating the difference between GDP at current prices and GDP at constant prices.

Ans. Following observations indicate the difference between GDP at current prices and GDP at constant prices:

GDP at Current Prices	GDP at Constant Prices
(i) It is the market value of the final goods and services produced within the domestic territory of a country during an accounting year, as estimated at current year prices.	(i) It is the market value of the final goods and services produced within the domestic territory of a country during an accounting year, as estimated at base year prices.
(ii) It can increase if price level rises even when there is no increase in the flow of goods and services in the economy.	(ii) It can increase only when the flow of goods and services increase in the economy.
(iii) It is known as nominal GDP.	(iii) It is known as real GDP.
(iv) It is not a good measure of welfare of people.	(iv) It is a good measure of welfare of people.

Conversion of Nominal GDP into Real GDP

If GDP at current prices is divided by the price index of the current year and multiplied by the price index of base year (which is always equal to 100), we obtain GDP at constant prices or real GDP.

$$\text{Real GDP or GDP at Constant Prices} = \frac{\text{GDP at Current Prices}}{\text{Price Index}} \times 100$$

Illustration

If in 2011, GDP is ₹ 100 crore, and in 2019 it is ₹ 200 crore at the current prices. And, if price index rises from 100 to 400 within the same period, then GDP at current prices is converted into real GDP (or GDP at constant prices) as in [Table 3](#).

Table 3. Conversion of Nominal GDP into Real GDP

Year	GDP at Current Prices (₹ in crore)	Index Number or Current Price Index	GDP at Constant Prices (or Base Year Prices) (₹ in crore)
2019	200	400	$200 \times \frac{100}{400} = 50$

It may be noted that GDP at current prices in 2019 is twice the GDP in 2011. But, GDP at constant prices has reduced from 100 in 2011 to 50 in 2019. This is because the index of price in the year 2019 has risen to 400 (compared to 100 in 2011).

We may also estimate nominal GDP, if real GDP and price index are known to us, using the following formula:

$$\text{Nominal GDP} = \text{Real GDP} \times \frac{\text{Price Index}}{100}$$

Example.

Find nominal GDP if real GDP = 240 and price index = 120.

Solution:

$$\begin{aligned}\text{Nominal GDP} &= \text{Real GDP} \times \frac{\text{Price Index}}{100} \\ &= 240 \times \frac{120}{100} = 288\end{aligned}$$

Ans. Nominal GDP = 288.

GDP Deflator

It refers to the ratio between GDP at current prices and GDP at constant prices. It is expressed as under:

$$\text{GDP Deflator} = \frac{\text{GDP at Current Prices}}{\text{GDP at Constant Prices}} \times 100$$

It shows change in GDP due to change in price level. It is the same as price index.

Example. If real GDP = 600 and nominal GDP = 660, find GDP deflator (price index).

$$\begin{aligned}\text{Solution: GDP Deflator (Price Index)} &= \frac{\text{Nominal GDP}}{\text{Real GDP}} \times 100 \\ &= \frac{660}{600} \times 100 = 110\end{aligned}$$

It shows increase in the general price level by 10%.

Note: GDP deflator should not be confused with Consumer Price Index, even when both indicate change in the price level. The basic difference is as under:

GDP deflator indicates change in price index or change in price level related to ALL goods and services **produced within the domestic territory of a country.**

Consumer Price Index indicates change in price index or change in price level related to only **a specific basket of goods** bought by the consumers, and **these may be produced within the domestic territory or in rest of the world.**



7. GDP AND WELFARE

Real GDP is considered as an index of welfare of the people. Welfare of the people is measured in terms of the availability of goods and

services per person. Increase in real GDP means increase in the level of output in the economy. Other things remaining constant, this means greater availability of goods per person implying higher level of welfare (popularly known as social welfare). It is because of this reason that the planners and politicians in a country always lay emphasis on the growth rate of GDP. Higher the growth of GDP, greater is the flow of goods and services. Greater is the availability of goods and services per person.

Limitations

But there are certain limitations related to the positive relationship between GDP and welfare. Or, we can say that there are certain limitations related to GDP as an index of social welfare. These are as under:

- (1) **Distribution of Income:** If distribution of income turns unequal, GDP growth fails to reflect a rise in social welfare. India is facing this situation at present. While per capita GDP is rising, starvation deaths are hitting the headlines more often than ever before. **Reason:** Distribution of income is becoming increasingly unequal.
- (2) **Composition of GDP:** Composition of GDP may not be welfare-oriented. **Example:** Increase in the production of defence goods does not lead to any direct increase in welfare of the people. [Of course, strong defence offers a peaceful environment in the country. But, it contributes to social welfare only indirectly.]
- (3) **Non-monetary Exchanges:** In rural economies, barter system of exchange still prevails to some extent. Payments for farm labour are often made in kind rather than in cash. All such transactions remain unrecorded. This causes underestimation of GDP. To the extent GDP remains underestimated, it remains an inappropriate index of welfare.
- (4) **Externalities:** Externalities refer to good and bad impact of an economic activity without paying the price or penalty for that. There are both positive and negative externalities. Positive externalities occur when, for example, Mr. X maintains a beautiful garden and Mr. Y (neighbour of Mr. X) enjoys it. It adds to welfare of Mr. Y but he does not pay for it. Negative externalities occur when, for example, smoke emitted by factories causes air pollution or industrial waste is driven into rivers causing water pollution. It causes a loss of social welfare. But, most farmers do not pay the penalty. GDP fails to account for the impact of positive and negative externalities on social welfare. Hence, it is an inappropriate index of welfare.

Thus, there are serious limitations of GDP as an index of welfare. These limitations reduce the significance of GDP as an index of welfare.

HOTS

Q. What lowers the significance of GDP as an index of welfare?

Ans. The following observations explain how the significance of GDP as an index of welfare is lowered:

- (i) **Distribution of Income:** GDP as an index of welfare loses significance if the distribution of income turns unequal.
- (ii) **Composition of GDP:** If luxuries are produced for richer sections of the society and the poor suffer deprivation, GDP growth becomes meaningless.
- (iii) **Non-monetary Exchanges/Transactions:** Larger the non-monetary transactions, greater the underestimation of GDP as an index of welfare.
- (iv) **Externalities:** GDP index does not account for externalities: the good and bad impact of economic activities without the price or penalty. Environmental pollution related to production activity is an important example. This also lowers the significance of GDP as an index of welfare.

Power Points & Revision Window

National Income is the sum total of factor incomes accruing to normal residents of a country. It does not account for transfer incomes.

- **Factor Incomes** are the rewards of the factor of production, viz., compensation of employees, rent, interest and profit.
- **Transfer Incomes** are unearned incomes. These include gifts in cash, scholarships to the students, old-age pensions to the senior, etc. These are not included in the estimation of the national income.
- **Normal Residents of a Country** are the people who (i) normally reside in the country concerned, and (ii) whose centre of economic interest lies in the country concerned.

Domestic Income is the sum total of factor incomes generated within the domestic territory of the country (no matter it is the income accruing to residents or non-residents of the country).

- **Conversion of Domestic Income into National Income:**

$$\text{Domestic income} + \text{Net factor income from abroad} = \text{National Income}$$
- **Domestic Territory of a Country** is the economic territory of the country in which economic activities of the country generate its domestic income.

Net Factor Income from Abroad (NFIA) is the difference between the factor income earned by our residents from abroad and factor income earned by non-residents in our country.

- **Domestic Income** does not include net factor income from abroad.
- **National Income** includes net factor income from abroad.

Gross and Net Concepts

- **Gross Domestic Product** is the market value of final goods and services produced within the domestic territory of the country during an accounting year, inclusive of depreciation.
- **Net Domestic Product** is the market value of final goods and services produced within the domestic territory of the country during an accounting year, exclusive of depreciation.
- **Conversion of GDP into NDP:**

$$\text{GDP} - \text{Depreciation} = \text{NDP}$$

Market Price and Factor Cost

- **Market Price** includes the impact of indirect taxes (taxes on goods and services) and subsidies.
 - **Indirect Tax** raises the market price, subsidies tend to lower it.
 - **Factor Cost** is the cost of factors of production. It is equal to factor payments.
- **Conversion of GDP_{MP} into GDP_{FC} :**

$$GDP_{MP} - \text{Net indirect taxes} = GDP_{FC}$$

(Here, Net indirect tax = Indirect tax – Subsidies.)

Nominal GDP is the market value of goods and services produced within the domestic territory of a country during an accounting year, as estimated using the current year prices.

- **Real GDP** is the market value of goods and services produced within the domestic territory of a country during an accounting year, as estimated using the base year prices.

• **Conversion of Nominal GDP into Real GDP:**

$$\frac{\text{Nominal GDP}}{\text{Price Index}} \times 100 = \text{Real GDP}$$

- **GDP Deflator** is the ratio between nominal GDP and real GDP. It shows change in GDP owing to the change in the price level. It is also called price index.

$$\text{GDP Deflator} = \frac{\text{Nominal GDP}}{\text{Real GDP}} \times 100$$

GDP and Welfare

- **Real GDP** is a widely used index of welfare. But, it suffers from certain limitations as it ignores:
(i) distribution of income, (ii) composition of GDP, (iii) non-monetary transactions, (iv) externalities.

EXERCISE

1. Objective Type Questions (Remembering & Understanding based Questions)

A. Multiple Choice Questions

Choose the correct option:

1. Market price of the final goods and services (including depreciation) produced within the domestic territory of a country during an accounting year, is called:
(a) GDP at market price
(b) GNP at market price
(c) GDP at factor cost
(d) GNP at factor cost
2. National income is often estimated as:
(a) NDP_{FC}
(b) NNP_{MP}
(c) NDP_{MP}
(d) NNP_{FC}
3. Domestic product is equal to:
(a) National product + Net factor income from abroad
(b) National product – Net factor income from abroad
(c) National product \div Net factor income from abroad
(d) National product \times Net factor income from abroad

4. Net indirect taxes are estimated as:
 - (a) Indirect taxes + Subsidies
 - (b) Subsidies – Indirect taxes
 - (c) Indirect taxes – Subsidies
 - (d) both (b) and (c)
5. Which of the following is not correct?
 - (a) $\text{NNP at Market Price} = \text{GNP at market price} + \text{Depreciation}$
 - (b) $\text{NDP at Market Price} = \text{NNP at market price} - \text{Net factor income from abroad}$
 - (c) $\text{NDP at Factor Cost} = \text{NDP at market price} - \text{Indirect taxes} + \text{Subsidies}$
 - (d) $\text{GDP at Factor Cost} = \text{NDP at factor cost} + \text{Depreciation}$
6. Which one is correct?
 - (a) $\text{National Income} = \text{NDP at factor cost} - \text{Net factor income from abroad}$
 - (b) $\text{GNP at Factor Cost} = \text{GNP at market price} + \text{Net indirect tax}$
 - (c) $\text{National Income} = \text{Domestic income} + \text{Net factor income from abroad}$
 - (d) $\text{GDP at Factor Cost} = \text{NDP at factor cost} - \text{Depreciation}$
7. Basis of the difference between the concepts of market price and factor cost is:
 - (a) direct taxes
 - (b) indirect taxes
 - (c) subsidies
 - (d) net indirect taxes
8. Which one leads to factor cost?
 - (a) $\text{Market price} - \text{Indirect taxes}$
 - (b) $\text{Market price} - \text{Net indirect taxes}$
 - (c) $\text{Market price} + \text{Indirect taxes}$
 - (d) $\text{Market price} + \text{Net indirect taxes}$
9. Which one includes depreciation?
 - (a) GNP at market price
 - (b) NNP at market price
 - (c) NNP at factor cost
 - (d) None of these
10. Which of the following is an example of normal residents of India?
 - (a) Foreign worker working in WHO located in India
 - (b) The German working as Director in IMF office located in India
 - (c) Ambassador in India from rest of the world
 - (d) Ambassador of India in rest of the world
11. National income includes:
 - (a) old-age pensions
 - (b) money sent by an NRI to his family in India
 - (c) transfer payments from rest of the world
 - (d) none of these
12. Financial help to a victim is:
 - (a) transfer payment
 - (b) factor income
 - (c) net factor income from abroad
 - (d) none of these
13. The difference between national income and domestic income is that of:
 - (a) net indirect taxes
 - (b) net factor income from abroad
 - (c) consumption of fixed capital
 - (d) both (a) and (b)
14. GNP at market price is measured as:
 - (a) $\text{GDP at market price} - \text{Depreciation}$
 - (b) $\text{GDP at market price} + \text{Net factor income from abroad}$
 - (c) $\text{GNP at market price} + \text{Subsidies}$
 - (d) $\text{NDP at factor cost} + \text{Net factor income from abroad}$
15. National income refers to:
 - (a) factor incomes only
 - (b) income of only normal residents of the country
 - (c) the sum total of domestic income and net factor income from abroad
 - (d) all of these

16. National income (NNP_{FC}) is equal to:
- (a) $GNP_{FC} + \text{Depreciation}$ (b) $GNP_{FC} - \text{Depreciation}$
 (c) $NNP_{MP} - \text{Net indirect taxes}$ (d) both (b) and (c)
17. Which of the following makes GDP an inappropriate index of welfare?
- (a) Non-monetary transactions (b) Externalities
 (c) Composition and distribution of GDP (d) All of these
18. The impact of an externality is:
- (a) positive (b) negative
 (c) either positive or negative (d) neither positive nor negative
19. Real national income means:
- (a) national income at current prices (b) national income at factor prices
 (c) national income at constant prices (d) national income at average prices of the past 10 years
20. GDP Deflator =
- (a) $\frac{\text{Real income}}{\text{Nominal income}} \times 100$ (b) $\frac{\text{Nominal income}}{\text{Real income}} \times 100$
 (c) $\frac{\text{Real income}}{\text{Population}} \times 100$ (d) None of these
21. Increase in price of commodities due to increase in taxes assumes relevance in the estimation of NNP_{MP} because:
- (a) taxes are compulsory payments
 (b) taxes are transfer payments
 (c) taxes are paid out of income of the households
 (d) taxes cause a rise in market price of the commodities which otherwise would have been sold at a lower price

Answers

1. (a) 2. (d) 3. (b) 4. (c) 5. (a) 6. (c) 7. (d) 8. (b) 9. (a) 10. (d)
 11. (d) 12. (a) 13. (b) 14. (b) 15. (d) 16. (d) 17. (d) 18. (c) 19. (c) 20. (b)
 21. (d)

B. Fill in the Blanks

Choose appropriate word and fill in the blank:

- Domestic Income = National income – _____ . (Net exports/Net factor income from abroad)
- _____ causes the difference between gross domestic product and net domestic product. (Depreciation/Indirect tax)
- A base year is the _____ year of a series of years in an economic index. (first/last)
- _____ on goods tend to raise the market price of the goods. (Direct taxes/Indirect taxes)
- GDP at Factor Cost = GDP at market price – _____ . (Depreciation/Net indirect taxes)
- _____ can increase only when the flow of goods and services increases in the economy. (Nominal GDP/Real GDP)
- Domestic factor income is greater than national income when net factor income from abroad is _____ . (positive/negative)

Answers

1. Net factor income from abroad 2. Depreciation 3. first 4. Indirect taxes
 5. Net indirect taxes 6. Real GDP 7. negative

C. True or False

State whether the following statements are True or False:

1. National income includes income of only the normal residents of a country. (True/False)
2. Indians employed in WHO located in India is normal residents of India. (True/False)
3. Transfer incomes are included in the estimation of national income as these are rewards for rendering factor services. (True/False)
4. Interest is received by the households for the use of their capital by the producing units. (True/False)
5. $\text{Nominal GDP} = \frac{\text{Real GDP}}{\text{Price Index}} \times 100$. (True/False)
6. GDP at current prices may lead to increase in the flow of goods and services in the economy. (True/False)
7. GDP deflator shows change in GDP owing to the change in the price level. (True/False)

Answers

1. True 2. True 3. False 4. True 5. False 6. True 7. True

D. Matching the Correct Statements

I. From the set of statements given in Column I and Column II, choose the correct pair of statements:

Column I	Column II
(a) NNP_{MP}	(i) $\text{GNP}_{\text{MP}} + \text{Depreciation}$
(b) GDP at constant prices	(ii) A good measure of welfare of people
(c) Transfer income	(iii) Earned income
(d) Crew members of foreign vessels	(iv) Normal residents of a country
(e) Environmental pollution	(v) An example of positive externality

Answer

(b) GDP at constant prices—(ii) A good measure of welfare of people

II. Identify the correct sequence of alternatives given in Column II by matching them with respective items in Column I:

Column I	Column II
(a) Factor income	(i) Economic territory
(b) Domestic income	(ii) $\text{NNP} + \text{Depreciation}$
(c) Gross national product	(iii) Estimated using the base year prices
(d) Domestic territory of a country	(iv) Included in the estimation of national income
(e) Real GDP	(v) Generated within the domestic territory of a country

Answers

(a)—(iv), (b)—(v), (c)—(ii), (d)—(i), (e)—(iii)

E. 'Very Short Answer' Objective Type Questions

1. Define gross domestic product at market price.

Ans. Gross domestic product at market price refers to market value of final goods and services produced within the domestic territory of the country within one year, inclusive of depreciation.

2. **Define net domestic product at market price.**
Ans. Net domestic product at market price refers to market value of final goods and services produced within the domestic territory of the country within one year, exclusive of depreciation.
3. **Define domestic product at factor cost or domestic income.**
Ans. Domestic product at factor cost or domestic income is the sum total of factor incomes generated within the domestic territory of the country during the period of one year along with depreciation or consumption of fixed capital.
4. **When is gross domestic product of an economy equal to its gross national product?**
Ans. Gross domestic product of an economy is equal to its gross national product when net factor income from abroad is zero.
5. **Define factor income.**
Ans. Factor income is the income received by owners of the factors of production in the form of rent, wages, interest and profit for the services rendered in the production process.
6. **What is meant by transfer incomes?**
Ans. Transfer incomes are those incomes corresponding to which there is no value addition in the economy. **Example:** Gifts and donations.
7. **What is meant by nominal GDP?**
Ans. Nominal GDP refers to market value of the final goods and services produced within the domestic territory of a country during an accounting year, as estimated using the current year prices. It may increase without any increase in the quantum of output in the economy.
8. **What is meant by real GDP?**
Ans. Real GDP refers to market value of the final goods and services produced within the domestic territory of a country during an accounting year, as estimated using the base year prices. It increases only when there is increase in the quantum of output in the economy.

2. Reason-based Questions (Comprehension of the Subject-matter)

Read the following statements carefully. Write True or False with a reason.

1. **Domestic product refers to value addition only by the resident producers.**
Ans. False. Domestic product/income refers to value addition or income generated in the domestic territory of a country by all producers (resident and non-resident) during one year.
2. **Net factor income from abroad is treated as a component of income from domestic product accruing to the government sector.**
Ans. False. Net factor income from abroad is a component of national income. It is added to domestic income to get national income.
3. **There is no difference between GDP at market price and GDP at factor cost in a two sector economy including household sector and producer sector.**
Ans. True. Difference between GDP at market price and GDP at factor cost is the net indirect taxes.

$$\text{Net indirect taxes} = \text{Indirect taxes} - \text{Subsidies}$$

The parameters of tax and subsidies emerge only when we are considering a three sector economy including households, producers and the government.
4. **GDP growth as an index of welfare loses its significance if there is a deep economic divide in the economy.**
Ans. True. Economic divide indicates the increasing gulf between the rich and poor people. If the gulf increases, GDP growth loses its significance.

5. National income at current prices can increase even when the quantum of goods and services produced during the year remains constant.
- Ans. True. Increase in the price level can cause an increase in national income at current prices without increase in the quantum of goods and services.
6. National income is always greater than domestic income.
- Ans. False. National income can be less than domestic income. National income is greater than domestic income only when net factor income from abroad is some positive number.
7. Increase in national income always implies increase in domestic income.
- Ans. False. National income = Domestic income + Net factor income from abroad.
This equation shows that national income can increase when net factor income from abroad increases even when domestic income is constant.
8. National income at market price is always greater than national income at factor cost.
- Ans. False. National income at market price = National income at factor cost + Net indirect taxes.
National income at market price can be less than national income at factor cost in case net indirect taxes is a negative number.
9. Domestic income as well as national income include only factor incomes.
- Ans. True. National income is the sum total of factor incomes earned by normal residents of a country during a given year. Domestic income is the sum total of factor incomes generated within the domestic territory of a country.
10. Market price includes the impact of indirect taxes, but not of subsidies.
- Ans. False. Market price includes the impact of both indirect taxes and subsidies. Indirect taxes raise the market price while subsidies lower it.
11. Net indirect taxes are never equal to zero.
- Ans. False. Net indirect taxes are equal to zero in case indirect taxes are equal to subsidies.
12. Increase in national income implies increase in the flow of goods and services in the economy.
- Ans. True. Provided that, national income (as the market value of final goods and services produced during the year) is estimated at constant prices, NOT at current prices.

3. HOTS & Applications

1. When will domestic factor income be greater than national income?
- Ans. Domestic factor income is greater than national income when net factor income from abroad is negative.
2. In the determination of social welfare, what matters is the quantum of output rather than the composition of output. Defend or refute.
- Ans. The above statement is incorrect. Social welfare depends both on the quantum of output as well as the composition of output. If goods are produced primarily for richer sections of the society (ignoring the interest of poorer sections of the society), social welfare is bound to remain low even when the quantum of output is rising.
3. Profits earned by a company in India, which is owned by a non-resident is included in national income of India? Is it true?
- Ans. No. Because this is the income which does not belong to the normal residents of India.
[Note: Profits earned by a company in India, which is owned by a non-resident is a part of domestic factor income of India, because the company is generating profit within the domestic territory of India. But these profits are a part of income from domestic product accruing to rest of the world. Therefore, these are not reflected in the estimation of national income. These are deducted from domestic income to find national income.]

4. Why is the income earned by foreigners working in a branch of a foreign bank in India a part of the domestic factor income of India?
- Ans. This is because the foreign bank is located within the domestic territory of India. Domestic factor income includes all factor incomes generated within the domestic territory of a country.
5. Production of defence goods is a limitation of GDP as an index of social welfare. How?
- Ans. Production of defence goods is a limitation of GDP as an index of social welfare. Because, defence goods do not make any direct contribution to the welfare of the individuals and households of a country.
6. Only one product D is produced in the country. Its output during the year 2018 and 2019 was 200 and 220 units respectively. The market price of the product during the year was ₹ 100 and ₹ 110 per unit respectively. Calculate the percentage change in real GDP and nominal GDP in year 2019 using 2018 as the base year.

Ans.

Year	Units	Market Price	Real GDP	Nominal GDP
2018	200	100	20,000	20,000
2019	220	110	22,000	24,200

$$\begin{aligned} \text{Percentage Change in Real GDP} &= \frac{\text{Change in real GDP}}{\text{Base year GDP}} \times 100 && [\text{Base year: 2018} = 100] \\ &= \frac{22,000 - 20,000}{20,000} \times 100 \\ &= \frac{2,000}{20,000} \times 100 = 10\% \end{aligned}$$

$$\begin{aligned} \text{Percentage Change in Nominal GDP} &= \frac{\text{Change in nominal GDP}}{\text{Base year GDP}} \times 100 \\ &= \frac{24,200 - 20,000}{20,000} \times 100 \\ &= \frac{4,200}{20,000} \times 100 = 21\% \end{aligned}$$

Percentage change in real GDP = 10%.

Percentage change in nominal GDP = 21%.

7. If the Real GDP is ₹ 520 and Nominal GDP is ₹ 650, calculate the price index (base = 100).

Ans.
$$\begin{aligned} \text{Price Index} &= \frac{\text{Nominal GDP}}{\text{Real GDP}} \times 100 \\ &= \frac{650}{520} \times 100 = 125 \end{aligned}$$

Price index = 125.

8. Should the following be treated as normal resident of India? Give reason for your answer.
- Foreigner working in Indian embassy in Taiwan.
 - Indian working in Asian Development Bank in Phillipines.
 - Indian student in USA who has been living there for five years.

Ans. (i) Foreigner working in Indian embassy in Taiwan is not a normal resident of India.

Reason: (a) He is not normally residing in India, and (b) His centre of interest does not lie in India.

(ii) Indian working in Asian Development Bank in Phillipines is a normal resident of India.

Reason: His centre of interest lies in India.

(iii) Indian student in USA who has been living there for five years is a normal resident of India.

Reason: His centre of interest lies in India. Also, as a rule of thumb, students studying abroad (no matter for how long) are treated as normal residents of the country they belong to.

9. An ambassador in US embassy in India stays in his job for a period exceeding one year.

Would he be treated as a resident or non-resident of India? Give reason.

Ans. Resident of a country is defined as a person who normally resides in the country (or does not leave the country for a period exceeding one year) and whose centre of interest lies in the country concerned. However, there are certain rules of thumb in national income accounting (based on standard practices rather than any logic). One such rule of thumb is that the foreign diplomats like ambassadors continue to be treated as non-residents even if their stay exceeds one year. Moreover, centre of interest of such diplomats continues to be in the country they belong to. Accordingly, US ambassador in India would be treated as non-resident of India, even when his stay in India exceeds the period of one year.

10. The government has withdrawn subsidy on petrol in the domestic market. But petrol is now selling cheaper than before.

Do you think the withdrawal of subsidy has led to a rise in real income of the people in India? Frame your answer in the context of price of petrol in the international market.

Ans. Other things remaining constant, withdrawal of subsidy should lead to a rise in market price of the commodity. Implying a fall in real income of the people. However, petrol is a distinct case. The bulk of domestic supply of petrol is met through imports. The price of petrol in the international market has so significantly reduced that, even after withdrawal of subsidy in the domestic market, petrol is available to the people at a rate cheaper than before. Thus, real income of the people has risen not because of withdrawal of subsidy, but because of a substantial fall in price of petrol in the international market, leading to a fall in price in the domestic market.

4. Analysis & Evaluation

1. The Government of India has launched a scheme of 'cash transfers' to the people below poverty line. Would you consider these transfers as a part of domestic income of the country?

Ans. No. Because these are just transfer payments, not related to factor services rendered by the beneficiaries.

2. Do you think higher level of real GDP always leads to higher availability of goods per person in the domestic economy? If not, what lesson do you draw from such a situation?

Ans. No. Higher level of real GDP may not always lead to higher availability of goods per person in the domestic economy. It depends on the growth rate of population. In case growth rate of population is very high, the availability of goods per person may not increase. It may in fact decrease over time in case population grows faster than the GDP.

A situation when population grows faster than GDP (and per capita availability of goods declines) suggests that the GDP growth would become effective only when population growth is curbed (checked). We must devise a policy of Birth Control. Only then, a rise in GDP would lead to a rise in quality of life of the people.

3. Does increase in domestic income always lead to increase in national income? If not, give an illustration in support of your answer. Also, write two suggestions to accelerate the growth of domestic income.

Ans. No. Increase in domestic income may not always lead to increase in national income.

Illustration:

National Income = Domestic income + Net factor income from abroad

Let us assume that domestic income increases from ₹ 160 crore to ₹ 200 crore. But net factor income from abroad decreases from ₹ 60 crore to ₹ 15 crore. Thus, domestic income increases by ₹ 40 crore (₹ 200 crore – ₹ 160 crore = ₹ 40 crore). But net factor income from abroad decreases by ₹ 45 crore [₹ 15 crore – ₹ 60 crore = (-) ₹ 45 crore]. So that, the sum total of domestic income and net factor income from abroad decreases by ₹ 5 crore [₹ 40 crore – ₹ 45 crore = (-) ₹ 5 crore]. This leads to a fall in national income by ₹ 5 crore.

Suggestions:

- (i) The government must make substantial investment in infrastructural development. This is expected to induce domestic investment across all production activities. Accordingly, growth of domestic income will accelerate.
- (ii) The government should remove red-tapism (administrative-hurdles), and promptly grant green clearances (clearances related to environment) for FDI (Foreign Direct Investment). If FDI picks up, growth of domestic income will accelerate.

4. The government claims that demonetisation of 500 and 1,000 rupee notes will lead to GDP growth. Do you agree?

Ans. Demonetisation will shrink the shadow economy (black money economy). Unaccounted GDP would now become accounted GDP. Accordingly, GDP growth would look to be higher than before, even when real output in the economy remains the same.

5. CBSE Questions—Past 5 years (With Answers or Reference to the Text for Answers)

1. If real GDP is ₹ 200 and price index (with base = 100) is 110, calculate nominal GDP.
[Page 399] [CBSE Delhi 2015]
2. If the nominal GDP is ₹ 1,200 and price index (with base = 100) is 120, calculate real GDP.
[Page 400] [CBSE Delhi 2015]
3. If the real GDP is ₹ 300 and nominal GDP is ₹ 330, calculate price index (base = 100).
[Page 401] [CBSE Delhi 2015]
4. If the real GDP is ₹ 400 and nominal GDP is ₹ 450, calculate the price index (base = 100).
[Page 401] [CBSE (AI) 2015]
5. If the real GDP is ₹ 500 and price index (base = 100) is 125, calculate the nominal GDP.
[Page 399] [CBSE (AI) 2015]
6. If the nominal GDP is 600 and price index (base = 100) is 120, calculate the real GDP.
[Page 400] [CBSE (AI) 2015]
7. If the nominal gross domestic product = ₹ 4,400 and the price index (base = 100) = 110, calculate the real gross domestic product.
[Page 400] [CBSE (F) 2015]
8. If the real gross domestic product is ₹ 200 and the nominal gross domestic product is ₹ 210, calculate the price index (base = 100).
[Page 401] [CBSE (F) 2015]
9. If the real gross domestic product is ₹ 250 and the price index (base = 100) is 120, calculate the nominal gross domestic product.
[Page 399] [CBSE (F) 2015]
10. Government incurs expenditure to popularize yoga among the masses. Analyse its impact on gross domestic product and welfare of the people. [CBSE Delhi 2016]
 - [(a) **Impact on Gross Domestic Product (GDP):** Government expenditure adds to aggregate demand in the economy. It has a multiplier effect on GDP when there is excess capacity (unutilised production capacity) in the economy.
 - [(b) **Impact on Welfare:** Expenditure on yoga is expected to improve physical and mental health of the people. Accordingly, skill formation as well as efficiency are expected to rise. Rise in efficiency leads to rise in income and therefore, rise in welfare.]

11. National income is the sum of factor incomes accruing to: (choose the correct alternative) [CBSE (AI) 2016]
- (a) nationals (b) economic territory
 (c) residents (d) both residents and non-residents
 [(c)]
12. Sale of petrol and diesel cars is rising particularly in big cities. Analyse its impact on gross domestic product and welfare. [CBSE (AI) 2016]
- [(a) **Impact on Gross Domestic Product (GDP):** $GDP = Sales$, in case there is no change in stocks during the year. Accordingly, increase in sale of cars during the year indicates increase in GDP.
 (b) **Impact on Welfare:** Rise in sale of cars leads to a rise in the consumption of petrol and diesel. Both these fuels (particularly diesel) cause emission of carbon dioxide. It increases environmental pollution. It adversely impacts welfare of the people. Because increase in environmental pollution causes increase in expenditure on the maintenance of health. It also reduces the level of sustainable development. Implying loss of welfare of future generations.]
13. Assuming real income to be ₹ 200 crore and price index to be 135, calculate nominal income. [CBSE (AI) 2016]
 [Page 399, 400]
14. If nominal income is ₹ 500 and price index is 125, calculate real income. [CBSE (AI) 2016]
 [Page 401]
15. If real income is ₹ 400 and price index is 105, calculate nominal income. [CBSE (AI) 2016]
 [Page 400]
16. Governments spends on child immunization programme. Analyse its impact on Gross Domestic Product and welfare of the people. [CBSE (F) 2016]
- [(a) **Impact on Gross Domestic Product (GDP):** Government expenditure adds to aggregate demand in the economy. It has a multiplier effect on GDP when there is excess capacity (unutilised production capacity) in the economy.
 (b) **Impact on Welfare:** Expenditure on child immunization programme is expected to improve health of the children. Accordingly, younger generation becomes healthy as well as efficient. This would improve welfare of the people.]
17. Given real income to be 400 and price index be 100, calculate nominal income. [CBSE (F) 2016]
 [Page 400]
18. Given nominal income to be ₹ 375 and price index 125, calculate real income. [CBSE (F) 2016]
 [Page 401]
19. If nominal income is ₹ 600 and price index is 100, find real income. [CBSE (F) 2016]
 [Page 401]
20. Explain 'non-monetary exchanges' as a limitation of using gross domestic product as an index of welfare of a country. [CBSE Delhi 2017]
 [Page 64]
21. Distinguish between domestic product and national product. [CBSE (F) 2017]
 [Page 55]
22. Given one example of negative externalities. [CBSE 2018]
 [Page 64]
23. "Gross Domestic Product (GDP) does not give us a clear indication of economic welfare of a country." Defend or refute the given statement with valid reason. [CBSE 2019 (58/1/1)]
 [Page 63, 64]

24. "Higher Gross Domestic Product (GDP) means greater per capita availability of goods in the economy." Do you agree with the given statement? Give valid reason in support of your answer.

[CBSE 2019 (58/2/1)]

[One needs to distinguish between GDP at current prices and GDP at constant prices (also called real GDP). Higher GDP would mean greater availability of goods in the economy only when there is a rise in real GDP, not when GDP rise is caused by a rise in the general price level. A rise in real GDP is a situation when the level of output in the economy tends to rise, leading to a rise in the flow of goods and services in the economy.]

25. Explain the meaning of Real Gross Domestic Product and Nominal Gross Domestic Product, using a numerical example.

[CBSE 2019 (58/2/1)]

[Page 60–62]

Suppose, the output of commodity-X during the year 2019 was 500 units and is constant compared to the base year. The market price of the commodity during the year 2019 is ₹ 50 per unit while the price in the base year was ₹ 40 per unit. Given this information,

Nominal GDP = $500 \times ₹ 50 = ₹ 25,000$ (as estimated using the current price)

Real GDP = $500 \times ₹ 40 = ₹ 20,000$ (as estimated using the base year price).]

26. Define gross domestic product.

[CBSE 2019 (58/2/1)]

[Page 57]

27. If in a locality, a new park is developed by the municipal corporation, it will have externalities, both positive and negative. State one example each of both types of externalities with reason.

[CBSE 2019 (58/3/1)]

Example of a Positive Externality: When the new park developed by municipal corporation raises welfare of people of the locality.

Example of a Negative Externality: When the new park developed by municipal corporation is used by anti-social elements and leads to insecurity of the residents.]

28. How is Real Gross Domestic Product (GDP) different from Nominal Gross Domestic Product (GDP)? Explain using a numerical example.

[CBSE 2019 (58/4/1)]

[Page 60–62]

29. What are 'non-monetary exchanges'? Discuss with suitable example.

[CBSE 2019 (58/5/1)]

[Page 64]

6. NCERT Questions (With Hints to Answers)

1. The value of the nominal GNP of an economy was ₹ 2,500 crore in a particular year. The value of GNP of that country during the same year, evaluated at the base year prices was ₹ 3,000 crore. Calculate the value of the GNP deflator of the year in percentage terms. Has the price level risen between the base year and the current year?

$$\text{[Hint: GNP Deflator} = \frac{\text{Nominal GNP}}{\text{Real GNP}} \times 100 = \frac{2,500}{3,000} \times 100 = 83.33\%$$

Fall in the value of deflator points to a fall in the price level between the base year and the current year.]

2. Write down some of the limitations of using GDP as an index of welfare of a country.

[Hint: Following are the limitations of using GDP as an index of welfare of a country:

- (i) Distribution of GDP is not taken into account.
- (ii) Composition of GDP is not accounted for.
- (iii) Non-monetary exchanges remain un-recorded, to which extent GDP remains underestimated.
- (iv) Externalities are not considered, even when these have considerable impact on social welfare.]

7. Miscellaneous Questions and Reference to the Text for Answers

A. Questions of 3 & 4 marks each

1. Distinguish between national income and domestic income. [Page 55]
2. Distinguish between gross domestic product at market price and net domestic product at market price. [Page 57]
3. Distinguish between gross domestic product at factor cost and net domestic product at factor cost. [Page 58]
4. What do you mean by net national product at market price? How will you estimate it on the basis of gross national product? [Page 57, 59]
5. What is the relation between net national product at market price and net national product at factor cost? [Page 57, 58]
6. What do you mean by domestic territory of a country? [Page 53, 54]
7. What is meant by normal residents of a country? [Page 52]
8. What does GDP deflator show? How is it estimated? [Page 63]
9. Explain the concepts of nominal GDP and real GDP. [Page 60–62]

B. Questions of 6 marks each

1. Explain the concepts of net national product at market price and net national product at factor cost. Highlight the difference between these concepts. [Page 57, 58]
2. Explain the concept of domestic product. Distinguish between gross domestic product and gross national product. [Page 53, 57]
3. State the components of domestic factor income. To find out national income, what is added to it and why? [Page 53, 54]
4. Distinguish between domestic income and national income by giving suitable example in support of your answer. [Page 53–55]
5. Explain the concept of domestic territory of a country. [Page 53, 54]
6. Explain the term normal residents of a country. Are the following normal residents of India?
 - (i) Indians employed in World Health Organisation located in India.
 - (ii) An American tourist staying in India.[Page 52, 53, 78, 79]
7. Explain briefly the distinction between:
 - (i) National income and Domestic income.
 - (ii) GDP at current prices and GDP at constant prices.[Page 55, 62]
8. How far can GDP be taken as an index of welfare? [Page 63–65]

DOs and DON'Ts

1. Do not consider $X - M$ (export – import) as a component of net factor income from abroad. It is simply net of exports. What we export is a part of our domestic product. It is to be considered as a part of total expenditure on domestic product. It is not a factor income: Receipts from exports are like receipts from the sale of output. Imports are just the opposite of exports.
2. Never consider 'GDP at current prices' as the index of welfare. Because, GDP at current prices may rise even when the production of goods and services in the economy is constant. GDP at current prices may rise simply because prices have risen. Welfare of the people rises only when the availability of goods and services rises.

- **Normal Residents of a Country**

It is not necessary that normal resident of a country is also a citizen of that country. A person may be a normal resident of one country even when he is a citizen of other country.

Normal Residents of a country include:

- (i) Citizens (and institutions) of the country who normally reside in the country and whose centre of economic interest lies in the country.
- (ii) Citizens of other nations who continue to live in the country beyond a period of one year and whose centre of economic interest lies in the country. For example, if an Indian is living in USA for more than one year and his centre of economic interest lies in that country, he would be deemed as a normal resident of USA even when he continues to be a citizen of India.
- (iii) Citizens of a country working in international organisations (like World Bank and IMF) or foreign embassies located in that country. For example, an Indian working in the World Bank office located in New Delhi would be considered as a normal resident of India.
- (iv) Citizens of a country who are living abroad, but not for a period exceeding one year and whose centre of economic interest lies in their home country.
- (v) Border workers or persons who cross the border between two countries daily or regularly in order to work in one country are the residents of the country in which they live, not of the country in which they are working.
- (vi) Officials, diplomats, and members of the armed forces of a foreign country are treated as the normal residents of the country to which they belong, and not of the country in which they are employed.

Normal Residents of a country do not include:

- (i) The foreigners who visit a country for travelling, recreation, holidays, medical treatment, studies, conferences, sports, etc.
- (ii) The officials, diplomats and members of armed forces of a foreign country posted in the country.
- (iii) International organisations located in the country.
- (iv) Crew members of foreign vessels.
- (v) Foreigners who are employees of non-resident enterprises and who have come to the country for purpose of installing machinery in these enterprises.

All these people will be treated as non-residents as generally they stay for less than one year in the concerned country and their centre of economic interest does not lie in it.

- **Components of Domestic Territory**

- (i) Territory lying within the political frontiers including territorial waters of a country.
- (ii) Ships and aircrafts operated by residents of the country across different parts of the world. For example, Indian ships moving between Japan and Korea regularly or passenger planes operated by Air India between England and Canada are a part of the domestic territory of India.

- (iii) Fishing vessels, oil and natural gas rigs and floating platforms operated by the residents of the country in the international waters or engaged in extraction in areas in which the country has the exclusive right of exploitation. For example, the fishing boats operated by Indian fishermen in the international waters of the Indian ocean are a part of the domestic territory of India.
- (iv) Embassies, consulates and military establishments of the country located abroad. For example, the Indian embassy in the United States of America is a part of the domestic territory of India and the embassy of USA in India is a part of the domestic territory of United States of America.

[**Note:** It may be noted in this context that domestic territory does not refer to the areas of ownership beyond political frontiers of a nation. It only refers to areas of operation where our persons, our goods and our capital can circulate freely to serve our economic interest. Thus, factor income generated within the domestic territory of a nation amounts to domestic income.]

- **Components of Net Factor Income from Abroad**

(i) **Net Compensation of Employees:** It is the difference between compensation (of employees) received by resident workers, temporarily employed abroad and a similar payment made to non-resident workers who are employed temporarily within the domestic territory of a country. [Compensation of employees refers to payments made by the employers to the employees both in cash and kind. It also includes payments made by the employers on behalf of the employees (like contribution to employees' provident fund).]

(ii) **Net Income from Property and Entrepreneurship (other than Retained Earnings of Resident Companies Abroad):** It is the difference between the income in the form of rent, interest and profit received by the residents of a country and similar payments made to the rest of the world.

(iii) **Net Retained Earnings of Resident Companies Abroad:** It is the difference between the retained earnings of resident companies located abroad and retained earnings of foreign companies located within the domestic territory of a country.

- **Estimation of GNP Deflator**

Using hypothetical figures, GNP deflator is calculated as under:

Goods	Current Year Quantities	Current Year Prices	Nominal GNP (Current Year) (2) × (3)	Base Year Prices	Real GNP (Current Year) (2) × (5)
(1)	(2)	(3)	(4)	(5)	(6)
Shirts	5	14	70	7	35
Shoes	3	30	90	10	30
Bricks	8	4	32	2	16
			Sum : 192		Sum : 81

$$\begin{aligned} \text{GNP Deflator for Current Year} &= \frac{\text{Nominal GNP for Current Year}}{\text{Real GNP for Current Year}} \times 100 \\ &= \frac{192}{81} \times 100 \\ &= 237.04 \end{aligned}$$

- **Concept of Green GNP**

GNP (at current or constant prices) is estimated with no regard to (i) environmental pollution, and (ii) exploitation of natural resources. If GNP increases along with increase in environmental pollution, the quality of life would be far less than indicated by the index of GNP. Likewise, if GNP increases along with excessive exploitation of the natural resources (so excessive that it reduces availability of resources for the future generations), the increase in GNP would only be misleading as it cannot be sustained in the years to come. Accordingly, it is suggested that GNP index should account for (i) cost in terms of environmental pollution, and (ii) cost in terms of excessive exploitation of natural resources. Estimation of GNP that accounts for these parameters (environmental pollution and excessive exploitation of natural resources) is called Green GNP.

- **New Concepts Introduced by CSO (Central Statistics Office)**

In India, national income and related aggregates are defined and estimated by CSO. Since 2015, CSO has introduced some new concepts as under:

Net Production Taxes

Net Production Taxes = Production taxes – Production subsidies

Important it is to note that the receipt and payment of production taxes and production subsidies are related to the product, not the volume of production. Land revenue and registration fee may be cited as examples.

Net Product Taxes

Net Product Taxes = Product taxes – Product subsidies

To be noted, product taxes and product subsidies are paid and received **per unit of product**. Excise tax, service tax may be cited as examples.

Basic Price

Basic price includes production taxes and production subsidies only.

Categorically, basic price does not include product taxes and product subsidies.

GVA at Basic Price

CSO now estimates GVA (gross value added) at basic price.

To be noted, GVA at basic price accounts only for production taxes and production subsidies. It does not account for product taxes and product subsidies.

Difference among GVA at Factor Cost, GVA at Basic Price and GVA at Market Price

$$\begin{aligned} \text{GVA at factor cost} + \text{Net production taxes} \\ &= \text{GVA at Basic Price} \end{aligned}$$

$$\begin{aligned} \text{GVA at basic price} + \text{Net product taxes} \\ &= \text{GVA at Market Price} \end{aligned}$$



METHODS OF CALCULATING NATIONAL INCOME

TO
DO

- *Methods of Calculating National Income*
- *Value Added Method*
(with reference to the Problem of Double Counting)
- *Income Method (with reference to the Concept of Operating Surplus)*
- *Expenditure Method (with reference to the Classification of Final Expenditure as Consumption Expenditure and Investment Expenditure)*

I. METHODS OF CALCULATING NATIONAL INCOME

Circular Flow Model (chapter 2) reveals that national income can be viewed from three different angles:

- as the sum total of value addition in the economy,
- as the sum total of income generated in the economy, and
- as the sum total of expenditure on the final goods and services produced in the economy.

Corresponding to the three different way of looking at national income, the economists have suggested three methods of calculating national income. These are:

(i) Value Added Method, (ii) Income Method, and (iii) Expenditure Method. Following is a brief description of these methods.

2. VALUE ADDED METHOD (OR PRODUCT METHOD)

Value Added Method measures national income in terms of value addition by each producing enterprise in the economy during an

accounting year. This is also known as **Industrial Origin Method** or **Net Output Method**. Estimation of the contribution of all producing enterprises to production in the domestic territory of the country during the year is equal to the market value of GDP, called GDP_{MP} . It is adjusted to find out NNP_{FC} or national income.

Value Added

Value added is the difference between value of output of an enterprise and the value of its intermediate consumption.

$$\text{Value Added} = \text{Value of output} - \text{Intermediate consumption}$$

Value of Output

It refers to market value of the goods (or services) produced by a firm during an accounting year. If the entire output of the year is sold during the year, value of output = sales.

$$\text{Value of Output} = \text{Sales, if entire output of the year is sold during the year}$$

If some output remains unsold, it is added to the firm's inventory stock. It is expressed as change in stock (Δstock) during the year. In such a situation, value of output is measured as the sum total of 'sales during the year' and 'change in stock during the year'.

$$\text{Value of Output} = \text{Sales} + \Delta\text{Stock, if some output remains unsold during the year}$$

Change in Stock (ΔStock)

It is measured as the difference between 'closing stock of the accounting year' and 'opening stock of the accounting year'.

$$\Delta\text{Stock} = \text{Closing Stock} - \text{Opening Stock}$$

Intermediate Consumption

It refers to value of non-factor inputs (all inputs other than factor inputs of land, labour, capital and entrepreneurship). Primarily, it includes value of raw material used in the process of production.

Illustration

Table 1 illustrates how 'value added' is estimated.

Table 1. Estimating Value Added (or Value Addition)

Producing Enterprise	Value of Output (₹)	Cost of Intermediate Goods [Intermediate Consumption] (₹)	Value Added (₹)
1. Farmer	600	200	400
2. Flour Mill	800	600	200
3. Baker	1,000	800	200
4. Shopkeeper	1,200	1,000	200
Total	3,600	2,600	1,000

In **Table 1**, it is assumed that the production of wheat involves cost of intermediate consumption of ₹ 200 (it may include cost of inputs like seeds, fertilizers, irrigation expenses, etc.). Accordingly, value added by the farmer is equal to ₹ 600 – ₹ 200 = ₹ 400.

- The flour mill buys wheat for ₹ 600 and sells flour for ₹ 800. Value added by the flour mill, therefore, is equal to ₹ 800 – ₹ 600 = ₹ 200.
- Further, the baker buys flour for ₹ 800 and sells the bread for ₹ 1,000 to the shopkeeper. The value added by the baker is ₹ 1,000 – ₹ 800 = ₹ 200.
- The shopkeeper buys the bread for ₹ 1,000 and sells the bread to the households for ₹ 1,200. The value added by the shopkeeper is ₹ 1,200 – ₹ 1,000 = ₹ 200.

Thus, the gross value added by all the producing enterprises is ₹ 400 + ₹ 200 + ₹ 200 + ₹ 200 = ₹ 1,000.

Gross value added by all the producing enterprises within the domestic territory of a country during an accounting year is called GDP_{MP} (gross domestic product at market price).

GDP_{MP} = Gross Value Added by all producing enterprises within the domestic territory of a country during the period of one year.
= Market value of final goods and services produced in the economy during the period of one year.

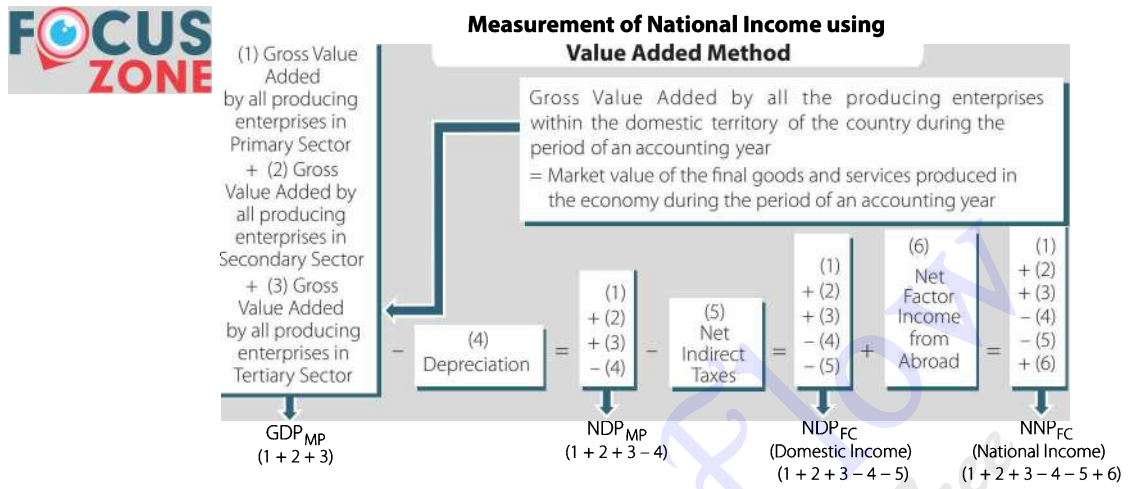


Having estimated GDP_{MP} , we find out NNP_{FC} (national income) in terms of the following equation:

$$\begin{aligned} & GDP_{MP} \\ & \quad - \text{Depreciation} \\ & = NDP_{MP} \\ & \quad - \text{Net indirect taxes} \\ & = NDP_{FC} \\ & \quad + \text{Net factor income from abroad} \\ & = NNP_{FC} \text{ (National Income)} \end{aligned}$$

[As noted earlier, national income is often identified with NNP_{FC} .]

Check the following flow chart for further illustration:



[**Note:** It is a standard practice to classify different producing units as primary, secondary and tertiary sectors of the economy. While primary sector is dominated by agriculture, secondary sector is largely taken as industrial sector, and the tertiary sector includes all types of services (banking, insurance, etc.) connected with 'value addition'.]

A Standard Precaution Relating to the Use of Value Added Method

Value added should not be confused with the value of output. Value of output simply refers to the market value of the goods produced. On the other hand, value added refers to the market value of the goods produced minus market value of the goods used as inputs/raw material in the process of production. Goods used as inputs/raw material are called intermediate goods. Thus,

Value Added
 = Value of output – Value of intermediate goods used in production.

Briefly, **while value of output includes the value of intermediate goods used in production, value added does not.**

Precautions Regarding Value Added Method

Following are some important precautions regarding value added method:

- (i) Value of the **sale and purchase of second-hand goods** is not included in the estimation of 'value added' or GDP. Because, value of second-hand goods is already accounted for during the year they were produced.
- (ii) **Commission earned** on account of the sale and purchase of second-hand goods is included in the estimation of value added. Because, commission is a reward for the services rendered.
- (iii) **Own account production of goods of the producing units** is taken into account while estimating value added. Because, these goods are like those produced for the market. They are simply not sold owing to their need by the producers themselves. **Example:** Cars used by the car producers for transporting their employees.
- (iv) Imputed value of **production for self-consumption** is taken into account. Again because, these goods are like those produced for the market. **Example:** Wheat produced and consumed by the farming families themselves.

- (v) Value of intermediate goods is not included in the estimation of value added. Because, value of intermediate goods is reflected in the value of final goods.
- (vi) Imputed rent on the owner occupied house is to be taken into account. Because, all houses have rental value, no matter these are self-occupied or rented out.
- (vii) Services for self-consumption are not considered while estimating value added. Simply because, it is difficult to estimate their market value, like, for example, services of housewives.

Problem of Double Counting and the Ways to Avoid it

While estimating national income as the market value of final goods produced in the economy, one is likely to encounter the problem of double counting. The problem arises when the value of certain goods is counted more than once. This happens when we fail to draw the distinction between final goods (or final sales) and intermediate goods (or intermediate sales). As far as an individual entrepreneur is concerned, it sells its goods as final goods and treats its sales as final sales. But it is for the students of economics to classify sales of different entrepreneurs as final goods and intermediate goods, depending on their end-use. Let us illustrate this problem with the help of an example.

- Suppose, a farmer produces one tonne of wheat and sells it for ₹ 400 in the market to a flour mill. As far as the farmer is concerned, the sale of wheat is a final sale and he gets ₹ 400 for it. If he does not have to incur any expenditure on the cultivation of wheat, ₹ 400 becomes the value of his contribution to GDP or value added by him.
- The purchase of wheat by the flour mill is an intermediate good. It converts wheat into flour and sells it for ₹ 600 to a baker. The flour mill treats the flour as a final good.
- But the baker uses it as an intermediate good and manufactures bread. The baker sells the bread to the shopkeeper for ₹ 800. For the baker, the bread is a final good.
- But for the shopkeeper, it is an intermediate good. The shopkeeper sells the entire stock of bread to the final consumers for ₹ 900.

In this entire chain of production activity, if we overlook the fact that the output of one producer is used as raw material (or intermediate consumption) by the other, GDP estimation would be grossly over-estimated. We might estimate it as equal to ₹ 400 + ₹ 600 + ₹ 800 + ₹ 900 = ₹ 2,700. But the fact of the matter is that only final goods are to be included in the estimation of GDP. And, in this example, market

value of the bread (₹ 900) sold by the shopkeeper to its final users (the consumers) should be included. Implying that GDP = ₹ 900, not ₹ 2,700 as noted above. One should be careful of avoiding such problems of double counting or over-estimation of GDP or national income.

Two Ways to Avoid it

The problem of double counting is avoided in case either of the following two methods is adopted for the estimation of GDP:

- (i) Final Output Method, and
- (ii) Value Added Method.

(i) Final Output Method: According to this method, only final goods and services (in terms of their end-use) are to be considered in the estimation of GDP. Intermediate goods are not to be considered. We know (in terms of their end-use), final goods are those goods which have crossed the boundary line of production and which are ready for use by their final users who may be consumers or producers. Intermediate goods are not to be considered, as these are within the boundary line of production and are yet not ready for use by their final users. In the above example, the bread sold to the consumers is the final good. Only the value of final good (bread in this case), *i.e.*, ₹ 900 will be included in the estimation of GDP.

(ii) Value Added Method: According to this method, sum total of value added by all the producing units within the domestic territory of the country is to be considered in the estimation of GDP. Value added refers to the difference between value of output and the value of intermediate consumption of each producing unit in the country. In the above example, value added at each stage of production, *i.e.*, ₹ 400 + ₹ 200 + ₹ 200 + ₹ 100 = ₹ 900 will be included in the estimation of GDP.

EXAMPLES

Example 1.

On the basis of the following data about an economy which consists of only two firms, find out:

- (a) Value Added by firm A and B, and
- (b) Gross Value Added or Gross Domestic Product at Factor Cost.

Items	(₹ in lakh)
(i) Sales by firm A	100
(ii) Purchases from firm B by firm A	40
(iii) Purchases from firm A by firm B	60

(iv) Sales by firm B	200
(v) Closing stock of firm A	20
(vi) Closing stock of firm B	35
(vii) Opening stock of firm A	25
(viii) Opening stock of firm B	45
(ix) Indirect taxes paid by both firms	30

Solution:

(a) Value Added by firm A

$$\begin{aligned}
 &= \text{Sales by firm A} - \text{Purchases from firm B} + \text{Change in stock} \\
 &\quad (\text{Closing stock} - \text{Opening stock}) \\
 &= ₹ 100 \text{ lakh} - ₹ 40 \text{ lakh} + (₹ 20 \text{ lakh} - ₹ 25 \text{ lakh}) \\
 &= ₹ 100 \text{ lakh} - ₹ 40 \text{ lakh} - ₹ 5 \text{ lakh} \\
 &= ₹ 55 \text{ lakh}
 \end{aligned}$$

Value Added by firm B

$$\begin{aligned}
 &= \text{Sales by firm B} - \text{Purchases from firm A} + \text{Change in stock} \\
 &\quad (\text{Closing stock} - \text{Opening stock}) \\
 &= ₹ 200 \text{ lakh} - ₹ 60 \text{ lakh} + (₹ 35 \text{ lakh} - ₹ 45 \text{ lakh}) \\
 &= ₹ 200 \text{ lakh} - ₹ 60 \text{ lakh} - ₹ 10 \text{ lakh} \\
 &= ₹ 130 \text{ lakh}
 \end{aligned}$$

Ans. Value Added by firm A = ₹ 55 lakh.

Value Added by firm B = ₹ 130 lakh.

(b) Gross Value Added or Gross Domestic Product at Factor Cost

$$\begin{aligned}
 &= \text{Value added by firm A} + \text{Value added by firm B} - \text{Indirect taxes} \\
 &= ₹ 55 \text{ lakh} + ₹ 130 \text{ lakh} - ₹ 30 \text{ lakh} \\
 &= ₹ 185 \text{ lakh} - ₹ 30 \text{ lakh} \\
 &= ₹ 155 \text{ lakh}
 \end{aligned}$$

Ans. Gross domestic product at factor cost = ₹ 155 lakh.

[**Note:** Value added by firm A and firm B here implies gross value added at market price.]

Example 2.

Calculate:

- (a) Gross Value Added at Market Price, and
 (b) National Income from the following data.

Items	(₹ in lakh)
(i) Value of output:	
(a) Primary sector	800
(b) Secondary sector	200
(c) Tertiary sector	300

(ii) Value of intermediate inputs purchased by:	
(a) Primary sector	400
(b) Secondary sector	100
(c) Tertiary sector	50
(iii) Indirect taxes paid by all sectors	50
(iv) Consumption of fixed capital of all sectors	80
(v) Factor income received by the residents from rest of the world	10
(vi) Factor income paid to non-residents	20
(vii) Subsidies received by all sectors	20

Solution:

(a) Gross Value Added at Market Price

$$\begin{aligned}
 &= \text{Value of output of different sectors} - \text{Value of intermediate inputs purchased by different sectors} \\
 &= ₹ 800 \text{ lakh} + ₹ 200 \text{ lakh} + ₹ 300 \text{ lakh} - ₹ 400 \text{ lakh} - ₹ 100 \text{ lakh} - ₹ 50 \text{ lakh} \\
 &= ₹ 750 \text{ lakh}
 \end{aligned}$$

Ans. Gross value added at market price = ₹ 750 lakh.

(b) National Income

$$\begin{aligned}
 &= \text{Gross domestic product at market price} - \text{Consumption of fixed capital} - \text{Indirect taxes} + \text{Subsidies} + \text{Factor income received by the residents from rest of the world} - \text{Factor income paid to non-residents} \\
 &= ₹ 750 \text{ lakh} - ₹ 80 \text{ lakh} - ₹ 50 \text{ lakh} + ₹ 20 \text{ lakh} + ₹ 10 \text{ lakh} - ₹ 20 \text{ lakh} \\
 &= ₹ 630 \text{ lakh}
 \end{aligned}$$

Ans. National income = ₹ 630 lakh.

3. INCOME METHOD

It is also called **Distributed Share Method or Factor Payment Method**. According to this method, national income is estimated in terms of factor payments (compensation of employees, rent, interest and profit) to the owners (households) of factors of production (labour, land, capital and enterprise) during an accounting year. Sum total of factor incomes generated within the domestic territory of a country (by the residents or non-residents) is called domestic income. Net factor income from abroad is added to domestic income to find national income.

What are Factor Incomes?

A factor income refers to income earned by a person as a reward for rendering his factor service. It may be in the form of wage/salary for his labour, rent for his land, interest for his capital or profit for his entrepreneurship. It must be noted that factor incomes are only 'earned' incomes. It does not include any income which is 'not earned' or for which a factor service has not been rendered. To illustrate, old-age pension received by the senior citizens is not their earned income. It is just a help by the government without anything in return. Such receipts or payments are called transfer receipts or transfer payments. These are not included in the estimation of national income.

HOTS

- Q.** How do you distinguish between old-age pensions and retirement pensions in the context of estimation of national income?
- Ans.** Old-age pensions are unilateral payments or transfer payments. These are not included in the estimation of national income. On the other hand, retirement pensions are like a deferred wage. These are related to factor services rendered by the recipients prior to their retirement. Accordingly, these are included in the estimation of national income.

Classification (or Types) of Factor Incomes

Factor incomes are broadly classified as follows:

- (1) Compensation of Employees:** It includes the following components:
 - (i) Wages and Salaries in Cash:** It refers to cash paid or transferred to the salary account of the employees by the employers as a reward for the work done during the period of an accounting year.
 - (ii) Payments in Kind:** It refers to benefits in kind (like rent-free accommodation) given to the employees by the employers.
 - (iii) Employers' Contribution to Social Security:** It refers to such payments as provident fund contributions by the employers on behalf of the employees.
 - (iv) Pension on Retirement:** To be specific, it does not refer to old-age pensions. It only refers to pension payments as a part of the 'Service-Contract' between the employer and the employees.
- (2) Operating Surplus:** It refers to income from property and entrepreneurship. It includes the following items:
 - (a) Rent, (b) Interest, and (c) Profit.

Profit is further split into three components as under:

- (i) **Dividends:** That part of the profit which is distributed among the shareholders. It is also called 'distributed profit'.
- (ii) **Corporate/Corporation Profit Tax:** That part of the profit which is paid to the government by way of 'profit tax'.
- (iii) **Undistributed Profit:** That part of the profit which is retained by the firms for future use, particularly to meet some contingent expenses. It is also called 'corporate saving' or 'undistributed profits'.

(3) Mixed Income: Mixed income refers to the incomes of the self-employed persons using their own labour, land, capital and entrepreneurship in their household enterprises. These incomes are a mixture of wages, rent, interest and profit. That is why it is called mixed income. Separate estimation of wages, rent, interest and profit is not possible. Because, factors of production are not hired/purchased from the market.

As noted earlier, sum total of factor incomes generated within the domestic territory of a country is called NDP_{FC} (net domestic product at factor cost) or simply domestic income.

NDP_{FC} = Sum total of factor incomes generated within the domestic territory of a country during an accounting year. It is briefly called domestic income.

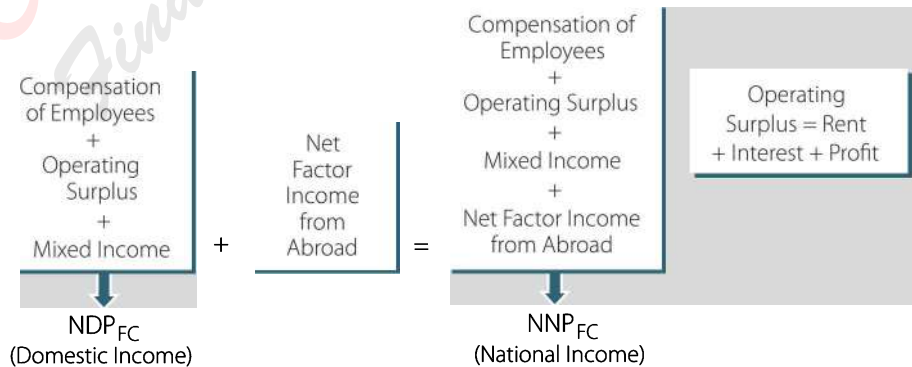
National income (NNP_{FC}) is estimated by adding net factor income from abroad to NDP_{FC} .

$$NNP_{FC} = NDP_{FC} + \text{Net factor income from abroad}$$

Check the following flow chart for further illustration:



Measurement of National Income using Income Method



Q. Operating surplus does not arise in (i) subsistence sector, and (ii) general government sector of the economy. Why?

Ans. Operating surplus does not arise in the subsistence sector and in the general government sector because of the following reasons:

- (i) In the subsistence sector, production is meant only for subsistence of the producing families. Production is not meant for sale in the market. There is no marketable surplus. Accordingly, there is no operating surplus.
- (ii) **In the general government sector, production is meant only for collective consumption (or consumption by the general public).** Goods and services are produced not for sale in the market, but for general welfare of the people. **Example:** Services of law & order and defence are available to the people free of charge. Accordingly, there is no operating surplus in the 'general government' sector.

Precautions Regarding Income Method

The following precautions are to be taken while using the income method:

- (i) Transfer earnings like old-age pensions, unemployment allowances, scholarships, pocket expenses, etc., should not be included in national income. Because, corresponding to transfer payments, there is no value addition in the economy. However, as already noted retirement pensions are to be included in national income, as these are part of compensation of employees.
- (ii) Income from illegal activities like, theft and gambling, etc., is not to be included in national income. As regards, income generated in terms of black money, it is not included simply because no estimates are available of such incomes.
- (iii) Commissions paid on the sale and purchase of second-hand goods are to be included in national income as these are a reward for rendering factor services.
- (iv) Brokerage on the sale/purchase of shares and bonds is to be included in national income. Because this is a reward for factor services.
- (v) Income in terms of windfall gains (like from lotteries) should not be included as there is no value addition corresponding to windfall gains. Likewise, income in the form of capital gains is not to be treated as factor income.
- (vi) Imputed rent of owner occupied houses is to be treated along with rent as a component of factor incomes.
- (vii) Corresponding to production for self-consumption, there should be generation of income in the economy. It should be taken account of.

A Standard Precaution Relating to the Use of Income Method

Income method accounts for only factor incomes corresponding to which there is a flow of goods and services in the economy. It does not account for such incomes corresponding to which there is no flow of goods and services or corresponding to which there is no value addition in the economy.

- (viii) Corporate tax, dividends and undistributed profits are all the components of corporate profits. Once profit is included in the estimation of national income, any of these components should not be separately added.
- (ix) Income tax is paid out of compensation of employees. It should not be added in the estimation of national income.
- (x) Wages and salaries in cash and kind—as well as social security contributions by the employers on behalf of employees are all components of compensation of employees. Any of these components should not be separately added once compensation of employees is included in the estimation of national income.

Note

All taxes by the government are received as compulsory transfer payments. These are not to be included in the estimation of national income.

EXAMPLES

Example 1.

Given the following data and using income method calculate:

(a) Net Domestic Income, (b) Gross Domestic Income, (c) Net National Income, and (d) Net National Product at Market Price.

Items	(₹ in crore)
(i) Indirect taxes	9,000
(ii) Subsidies	1,800
(iii) Depreciation	1,700
(iv) Mixed income of self-employed	28,000
(v) Operating surplus	10,000
(vi) Net factor income from abroad	(-) 300
(vii) Compensation of employees	24,000

Solution:

(a) Net Domestic Income

$$\begin{aligned}
 &= \text{Mixed income of self-employed} + \text{Operating surplus} \\
 &\quad + \text{Compensation of employees} \\
 &= ₹ 28,000 \text{ crore} + ₹ 10,000 \text{ crore} + ₹ 24,000 \text{ crore} \\
 &= ₹ 62,000 \text{ crore}
 \end{aligned}$$

Ans. Net domestic income = ₹ 62,000 crore.

(b) Gross Domestic Income

$$= \text{Net domestic income} + \text{Depreciation}$$

$$= ₹ 62,000 \text{ crore} + ₹ 1,700 \text{ crore}$$

$$= ₹ 63,700 \text{ crore}$$

Ans. Gross domestic income = ₹ 63,700 crore.

(c) Net National Income

$$= \text{Net domestic income} + \text{Net factor income from abroad}$$

$$= ₹ 62,000 \text{ crore} + (-) ₹ 300 \text{ crore}$$

$$= ₹ 62,000 \text{ crore} - ₹ 300 \text{ crore}$$

$$= ₹ 61,700 \text{ crore}$$

Ans. Net national income = ₹ 61,700 crore.

(d) Net National Product at Market Price

$$= \text{Net national income} + \text{Indirect taxes} - \text{Subsidies}$$

$$= ₹ 61,700 \text{ crore} + ₹ 9,000 \text{ crore} - ₹ 1,800 \text{ crore}$$

$$= ₹ 68,900 \text{ crore}$$

Ans. Net national product at market price = ₹ 68,900 crore.

Example 2.

The following information is available for an economy. On the basis of this information using income method, calculate: (a) Domestic Income, and (b) National Income.

Items	(₹ in crore)
(i) Wages	10,000
(ii) Rent	5,000
(iii) Interest	400
(iv) Dividend	3,000
(v) Mixed income	400
(vi) Undistributed profit	200
(vii) Social security contribution	400
(viii) Corporate profit tax	400
(ix) Net factor income from abroad	1,000

Solution:

(a) Domestic Income

$$= \text{Wages} + \text{Rent} + \text{Interest} + \text{Dividend} + \text{Mixed income}$$

$$+ \text{Undistributed profit} + \text{Social security contribution}$$

$$+ \text{Corporate profit tax}$$

$$= ₹ 10,000 \text{ crore} + ₹ 5,000 \text{ crore} + ₹ 400 \text{ crore} + ₹ 3,000 \text{ crore}$$

$$+ ₹ 400 \text{ crore} + ₹ 200 \text{ crore} + ₹ 400 \text{ crore} + ₹ 400 \text{ crore}$$

$$= ₹ 19,800 \text{ crore}$$

Ans. Domestic income = ₹ 19,800 crore.

(b) National Income

$$\begin{aligned} &= \text{Domestic income} + \text{Net factor income from abroad} \\ &= ₹ 19,800 \text{ crore} + ₹ 1,000 \text{ crore} \\ &= ₹ 20,800 \text{ crore} \end{aligned}$$

Ans. National income = ₹ 20,800 crore.

4. EXPENDITURE METHOD

According to this method, national income is estimated in terms of expenditure on the purchase of final goods and services produced in the economy during an accounting year. Since final expenditure comprises C (consumption) and I (investment), it is also called **Consumption and Investment Method**, or **Income Disposal Method**. Estimation of expenditure on the final goods produced during the year (within the domestic territory of a country) is equal to the market value of GDP, called GDP_{MP} . It is adjusted to find NNP_{FC} or national income.

Classification of Final Expenditure

Final expenditure (as expenditure on the purchase of domestically produced final goods and services during an accounting year) is broadly classified into four categories, viz. (i) private final consumption expenditure (C), (ii) government final consumption expenditure (G), (iii) investment expenditure (I), and (iv) net exports (X - M). Details are as under.

(1) Private Final Consumption Expenditure (C)

It refers to expenditure on final goods and services by the individuals, households and non-profit private institutions serving society (like Help-age).

It includes:

- (i) consumer services.
- (ii) consumer non-durable goods, that is, goods which are not repeatedly used like butter or milk.
- (iii) consumer durable goods which are repeatedly used for several years, like furniture and washing machines.

(2) Government Final Consumption Expenditure (G)

It refers to expenditure on final goods and services by the government, like expenditure on the purchase of goods for consumption by the defence personnel.

(3) Investment Expenditure (I)

It refers to expenditure on the purchase of final goods by the producers. These goods are to be further used in the process of production.

Example: Expenditure by the farmers on the purchase of tractors.

Investment expenditure is further classified as under:

(i) Fixed investment, and (ii) Inventory investment.

(i) **Fixed Investment:** Fixed investment refers to expenditure by the producers on the purchase of fixed assets like plant and machinery. Economists often classify fixed investment as: (a) **business fixed investment**, (b) **fixed investment by the households in terms of construction of houses**, and (c) **public fixed investment or fixed investment by the government**, like expenditure by the government on the construction of roads, dams and bridges.

(ii) **Inventory Investment:** It refers to change in stock during the year. As noted earlier, it is estimated as the difference between 'closing stock of the year' and 'opening stock of the year'.

(4) Net Exports (X – M)

Net exports refer to the difference between exports and imports during an accounting year. Exports are an expenditure by the foreigners on the domestically produced final goods and services, while imports are an expenditure on the goods and services produced abroad. While expenditure on the domestically produced goods and services is added to **total expenditure in the economy during an accounting year**, **expenditure on imports is deducted**. This adjustment is essential for a precise estimation of the expenditure on the domestically produced goods and services.

Sum total of expenditure on the domestically produced goods and services during an accounting year is called GDP_{MP} (gross domestic product at market price).

Did You Know?

■ Inventory investment

is measured as the difference between 'closing stock of the year' and 'opening stock of the year'. The stock includes:

- (i) Stock of finished goods,
- (ii) Stock of semi-finished goods, and
- (iii) Stock of raw material.

■ Exports are included in GDP

because exports are a part of domestically produced goods and services, or because exports are a part of goods and services produced within the domestic territory of a country.

Private final consumption expenditure

$$\begin{aligned} &+ \text{Government final consumption expenditure} \\ &+ \text{Business fixed investment} \\ &+ \text{Government fixed investment} \\ &+ \text{Investment on residential construction by households} \\ &+ \text{Inventory investment } (= \Delta \text{Stock} = \text{Closing stock} - \text{Opening stock}) \\ &+ \text{Net exports } (X - M) \\ &= GDP_{MP} \end{aligned} \quad \left. \vphantom{\begin{aligned} &+ \text{Government final consumption expenditure} \\ &+ \text{Business fixed investment} \\ &+ \text{Government fixed investment} \\ &+ \text{Investment on residential construction by households} \end{aligned}} \right\} \begin{array}{l} \text{Gross Domestic} \\ \text{Fixed Investment} \end{array}$$

[Note: Gross domestic fixed investment is also called gross domestic fixed capital formation as investment implies capital formation or adding to the stock of capital.]

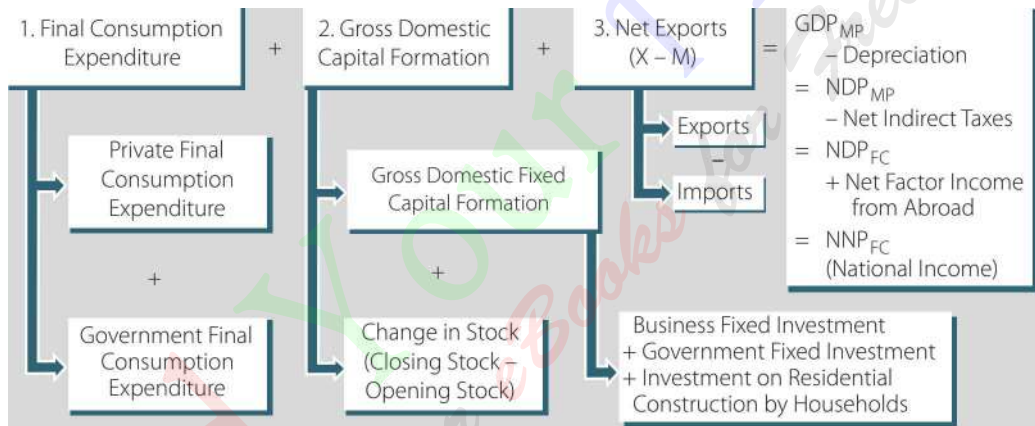
GDP_{MP} is converted into NNP_{FC} (national income) in terms of the following equation:

$$\begin{aligned}
 & GDP_{MP} \\
 & \quad - \text{Depreciation} \\
 & = NDP_{MP} \\
 & \quad - \text{Net indirect taxes} \\
 & = NDP_{FC} \text{ (Domestic Income)} \\
 & \quad + \text{Net factor income from abroad} \\
 & = NNP_{FC} \text{ (National Income)}
 \end{aligned}$$

Check the following flow chart for further illustration:



Measurement of National Income using Expenditure Method



HOTS

Q. What causes increase in inventory stock?

Ans. Increase in inventory stock is caused by two factors:

- (i) **Unexpected Fall in Demand in the Current Year: Example:** Producers may have expected demand to the tune of 50,000 umbrellas but, owing to the failure of monsoon, only 10,000 umbrellas are sold during an year. Accordingly, 40,000 umbrellas are added to the existing stock.
- (ii) **Expected Rise in Demand in the Near Future:** Producers may expect a spurt (rise) in demand (and therefore, increase in price) in the near future. Accordingly, they pile up stocks during the current year.

Precautions Regarding Expenditure Method

The following precautions are to be taken while using expenditure method:

**Standard Precaution
Relating to the Use of
Expenditure Method**

Final expenditure is to be interpreted as expenditure on the purchase of final goods and services produced within the domestic territory of the country. Expenditure on the intermediate goods and services is not to be taken into account.

- (i) **Only final expenditure** is to be taken into account to avoid error of double counting. Final expenditure is to be interpreted as expenditure on final goods and services. Expenditure on intermediate goods and services (referring to intermediate consumption) must be avoided.
- (ii) Expenditure on **second-hand goods** is not to be included. Because, value of second-hand goods has already been accounted during the year of their production (when these were initially produced and purchased by the final users).
- (iii) Expenditure on **shares and bonds** is not to be included in total expenditure, as these are mere paper claims and are not related to the production of final goods and services. Such expenditures do not cause any value addition.
- (iv) Expenditure on transfer payments by the government (like, old-age pension, scholarship) is not to be included, because transfer payments do not cause any value addition in the economy.
- (v) Imputed value (estimated value) of expenditure on goods produced for self-consumption should be taken into account, as these goods are reflected in the estimation of GDP. Also, imputed rent on owner occupied houses should be taken into account.

EXAMPLES

Example 1.

From the following data, calculate the GDP at both (a) market price, and (b) factor cost.

Items	(₹ in crore)
(i) Gross investment	90
(ii) Net exports	10
(iii) Net indirect taxes	5
(iv) Depreciation	15
(v) Net factor income from abroad	(-) 5
(vi) Private consumption expenditure	350
(vii) Government purchases of goods and services	100

Solution:

$$\begin{aligned} \text{(a) } GDP_{MP} &= \text{Gross investment} + \text{Net exports} + \text{Private consumption} \\ &\quad \text{expenditure} + \text{Government purchases of goods and services} \\ &= ₹ 90 \text{ crore} + ₹ 10 \text{ crore} + ₹ 350 \text{ crore} + ₹ 100 \text{ crore} \\ &= ₹ 550 \text{ crore} \end{aligned}$$

Ans. $GDP_{MP} = ₹ 550 \text{ crore.}$

$$\begin{aligned}
 \text{(b) } GDP_{FC} &= GDP_{MP} - \text{Net indirect taxes} \\
 &= ₹ 550 \text{ crore} - ₹ 5 \text{ crore} \\
 &= ₹ 545 \text{ crore}
 \end{aligned}$$

Ans. $GDP_{FC} = ₹ 545 \text{ crore.}$

Example 2.

Find NDP_{FC} from the following data.

Items	(₹ in crore)
(i) Gross domestic fixed investment	10,000
(ii) Inventory investment	5,000
(iii) Depreciation	2,000
(iv) Indirect taxes	1,000
(v) Subsidies	2,000
(vi) Consumption expenditure	20,000
(vii) Residential construction investment	6,000

Solution:

$$\begin{aligned}
 GDP_{MP} &= \text{Gross domestic fixed investment} + \text{Inventory investment} \\
 &\quad + \text{Consumption expenditure} \\
 &= ₹ 10,000 \text{ crore} + ₹ 5,000 \text{ crore} + ₹ 20,000 \text{ crore} \\
 &= ₹ 35,000 \text{ crore}
 \end{aligned}$$

$$\begin{aligned}
 NDP_{FC} &= GDP_{MP} - \text{Depreciation} - \text{Indirect taxes} + \text{Subsidies} \\
 &= ₹ 35,000 \text{ crore} - ₹ 2,000 \text{ crore} - ₹ 1,000 \text{ crore} + ₹ 2,000 \text{ crore} \\
 &= ₹ 34,000 \text{ crore}
 \end{aligned}$$

Ans. $NDP_{FC} = ₹ 34,000 \text{ crore.}$

HOTS

Q. 1. Export receipts are not a part of net factor income from abroad. Why?

Ans. This is because of two reasons:

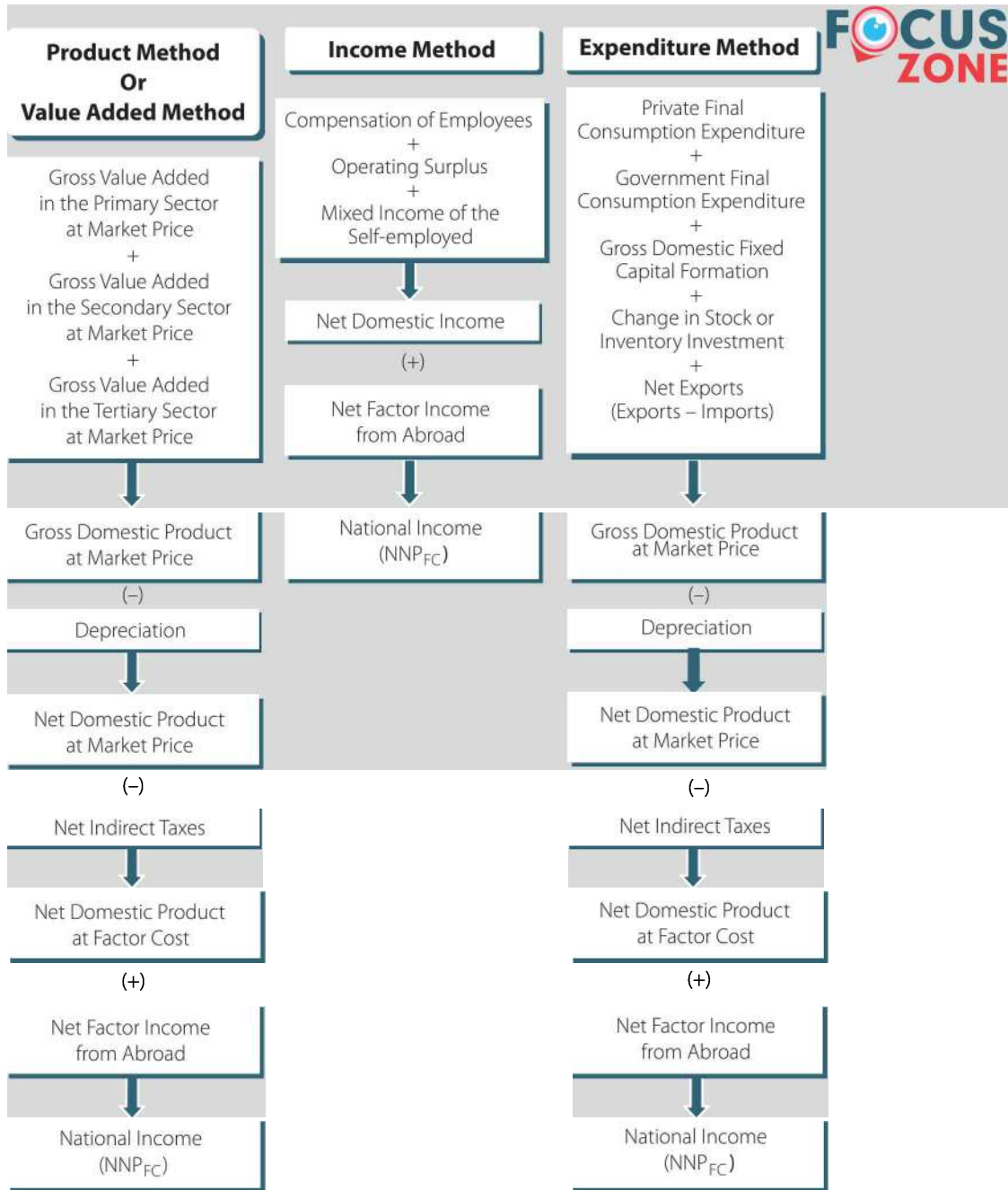
- (i) Exports refer to the purchase of domestically produced goods by the rest of the world. Goods produced within the domestic territory of a country are to be treated as a part of GDP.
- (ii) Export receipts refer to revenue of the firms from the sale of its output. These are not the receipts of factor incomes from abroad which are available in the form of rent, interest, profit and wages.

Q. 2. Exports are just sales yielding revenue, not income. Comment.

Ans. It is true that exports are just sales and yield revenue, not income. Exports are just sales because these are purchases of rest of the world from the domestic economy. Accordingly, exports yield revenue (receipts from sales). These do not yield income. Because, income is in the form of rent, interest, profit or wages. Exports do not yield any of these directly.

[Note: It is out of revenue that a firm distributes incomes to the owners of factors of production.]

The flow chart shows how estimation of national income using different methods is reconciled. We get triple identity in terms of the equality of estimation of national income using (i) product or value added method, (ii) income method, and (iii) expenditure method.



Dos and Don'ts

Do not include the following items in the estimation of national income:

- (i) **Gifts from Abroad:** These are transfer payments and, therefore, not included in national income.
- (ii) **Unemployment Allowance:** This is available to those persons who are not employed. This is, therefore, only a transfer payment not included in national income.
- (iii) **Financial Help to Tsunami Victims:** It is not included in national income since it is a transfer payment.
- (iv) **Purchase of Vegetables by a Restaurant:** It is not included in national income since it is an intermediate consumption.
- (v) **Expenses on Electricity by a Factory:** It is not included in national income since it is a part of intermediate consumption.
- (vi) **Leisure-time Activities like Growing Vegetables by Household in his Kitchen Garden:** By convention, value added through such activities is not accounted for in the estimation of national income/product.
- (vii) **Services rendered by the Housewives:** These are not included in national income because it is difficult to find their market value, and these are not rendered for the purpose of earning income.
- (viii) **Money Received by an Individual from his Son Working Abroad:** It is not included in national income of India because it is a kind of transfer income.
- (ix) **Interest Received from a Friend on Loans offered to him for the Purchase of a Motorbike:** It is not included in national income because loans are not used for production purpose.
- (x) **Corporate Profit Tax:** It is not included in the estimation of national income as it flows out of profits as a transfer payment to the government.

[**Note:** If profit is not known (in any numerical question) we can find its value by adding up: (a) dividends, (b) undistributed profits, and (c) corporate profit tax. However, if the question is: how do we treat corporate tax in the estimation of national income then the answer is as in point (x) above.]

Do include the following items in the estimation of national income:

- (i) **Defence and Security Services:** For maintaining law & order and defence of the country, the government has to employ defence personnel, policemen, judges and others. The services of these persons may be taken as intermediary or final. These are final services so far as they provide security and peaceful existence to the households. On the other hand, they may be treated as intermediary services in so far as they provide peaceful environment to the productive process. However, **it is very difficult to assess the extent to which these services are intermediate or final. Accordingly, as a matter of convention, these are treated as final services and are, therefore, included in national income.**
- (ii) **Free Services by the Government:** Free services by the government like free education, free medical facilities or street lighting involve expenditure by the government which is a part of government final consumption expenditure. Hence, expenditure on these services is taken as a part of expenditure on final goods and services. These are included in national income while using expenditure method.
- (iii) **Employer's Contribution to Provident Fund:** It is included in national income, since it is paid by the employers on behalf of the employees.
- (iv) **Rent Received by Indian Residents on Buildings Rented out to Foreign Embassies in India:** It is income from the rest of the world and forms a part of net factor income from abroad. It is included in national income.
- (v) **Profits Earned by a Branch of an Indian Bank in London:** It is included in the national income since it is a part of net factor income from abroad.
- (vi) **Wages Received by the Indian Employees Working in Pakistan Embassy:** It is included in national income since Indian employees of Pakistan Embassy are normal residents of India.
- (vii) **Salary to Foreign Technical Specialists:** As a payment of factor income to the 'non-resident', it reduces national income.
- (viii) **Dividend Received by an Indian Resident from his Investment in a Foreign Financial Firm:** It is included in national income of India because it is a part of net factor income from abroad.

A Fundamental Question

Argument is sometimes advanced that only the production of those goods should be included in the estimation of national product/income which flow from producers to the consumers through the market. According to the authors of the present text, this is a wrong notion. Consider an economy where farming is the only production activity. Also, assume that all the farmers in this economy produce only for self-consumption: they do not sell their produce in the market, because production is barely enough for consumption by the farming families themselves. Thus, final goods (rice or wheat) are being consumed without any market transaction. If only such goods which are routed through the market are to be recorded, such an economy (where production is only for self-consumption) would be a zero production economy. It sounds ridiculous. Can an economy survive without production? Perhaps never.

Let it be clearly understood that the imputed value of production (by the farmers) for self-consumption is always included in the estimation of national income.

Power Points & Revision Window

Three Different Methods of Measuring National Income

- (i) Product Method (or Value Added Method),
- (ii) Income Method,
- (iii) Expenditure Method.

Product Method (or Value Added Method) is that method which measures the gross value added (or gross domestic product) at market price as the sum total of value added by all the producing units within the domestic territory of the country, during the period of an accounting year. It is adjusted to find national income (NNP_{FC}).

- **Precaution:** Add only the market value of final goods and services, do not include market value of intermediate goods and services.

Or

Avoid double counting.

- **Double Counting and Avoiding it:** Double counting occurs if output of all the producers is added up without considering the fact that output of one producer may have been used as an input by the other. It can be best avoided by adding up value added, rather than output of different firms.

Value Added = Value of output – Intermediate consumption (referring to expenditure on intermediate goods and services)

Income Method is that method which measures domestic income as the sum total of factor incomes (rent + interest + profit + wages) generated within the domestic territory of a country during the period of an accounting year. Net factor income from abroad is added to domestic income to find national income (NNP_{FC}).

- **Precaution:** Add only factor incomes, do not include transfer payments. Also, do not include income generated through illegal activities (like, gambling).

Expenditure Method is that method which measures the gross domestic product at market price as the sum total of the expenditure (consumption expenditure and investment expenditure) on the purchase of final goods and services produced within the domestic territory of the economy during the period of an accounting year. It is adjusted to find national income (NNP_{FC}).

- **Precaution:** Consider only the expenditure on final goods that causes: (i) final consumption, or (ii) capital formation (also called investment); do not include expenditure on intermediate goods and services. Also, do not consider expenditure on second-hand goods or on shares and bonds.

EXERCISE

1. Objective Type Questions (Remembering & Understanding based Questions)

A. Multiple Choice Questions

Choose the correct option:

1. Household inventory is:
(a) not included in national income (b) a stock concept
(c) both (a) and (b) (d) none of these
2. Remittances from a relative working abroad are:
(a) included in national income (b) not included in national income
(c) transfer payments (d) both (b) and (c)
3. Own account production of goods is included in national income because:
(a) goods are tangible
(b) their valuation is possible
(c) goods are more productive than services
(d) none of these
4. Value added refers to:
(a) production of durable goods (b) output – intermediate consumption
(c) production of non-durable goods (d) expenditure on intermediate goods
5. Gross domestic capital formation is the sum total of:
(a) expenditure on fixed assets
(b) gross domestic fixed capital formation and change in stock
(c) net domestic fixed capital formation + inventory investment + depreciation
(d) both (b) and (c)
6. Value added method measures the contribution of which of the following within the domestic territory of a country?
(a) Household consumers
(b) The producing enterprises owned by residents of the country
(c) The producing enterprises owned by the non-residents of the country
(d) Both (b) and (c)
7. Which of the following items is not included while estimating national income by income method?
(a) Rent (b) Mixed income
(c) Fixed investment (d) Undistributed profits
8. Which of the following is not an element of final consumption expenditure?
(a) Household expenditure on food (b) Government final consumption expenditure
(c) Household expenditure on education (d) Expenditure on raw material
9. As a result of double counting, national income is:
(a) over-estimated (b) under-estimated
(c) correctly estimated (d) not estimated for the entire year of accounting

10. Which of the following is not included in national income?
 - (a) Receipt of a gift cheque sent by your parents settled abroad
 - (b) Repatriation of wages earned by the NRIs to their parents in India
 - (c) Excise duty on domestic production
 - (d) All of these
11. Which of the following is not a transfer payment?
 - (a) Interest on national debt
 - (b) Retirement pensions
 - (c) Old-age pensions
 - (d) Donations
12. Which of the following items is not included while estimating GNP of a country at market price?
 - (a) Sales of the enterprises
 - (b) Indirect taxes
 - (c) Remittances by NRIs
 - (d) Subsidy
13. Own account production of services is not included in national income because:
 - (a) services are different from goods
 - (b) services are not productive
 - (c) it is difficult to measure market value of such services
 - (d) none of these
14. Difference between closing stock and opening stock during an accounting year is known as:
 - (a) increase in stock
 - (b) change in stock
 - (c) decrease in stock
 - (d) none of these
15. Compensation of employees includes:
 - (a) wages and salaries in cash
 - (b) wages and salaries in kind
 - (c) pension on retirement
 - (d) all of these
16. Operating surplus =
 - (a) Rent + Profit + Interest
 - (b) Rent + Interest + Compensation of employees
 - (c) $NDP_{FC} - \text{Compensation of employees} - \text{Mixed income of self-employed}$
 - (d) both (a) and (c)
17. Which of the following is not included in inventory investment?
 - (a) Change in stock of finished goods
 - (b) Change in stock of semi-finished goods
 - (c) Change in stock of raw material
 - (d) Change in sales during the year
18. Which of the following is not a part of final expenditure?
 - (a) Consumer goods purchased by the government
 - (b) Consumer goods exported to rest of the world
 - (c) Seeds purchased by the farmers
 - (d) Government fixed investment expenditure
19. Problem of double counting can be avoided by using:
 - (a) final output method
 - (b) value added method
 - (c) both (a) and (b)
 - (d) neither (a) nor (b)

20. Which of the following is irrelevant in the estimation of compensation of employees?
- Free accommodation provided to the school principals
 - Free education of the students whose parents are working in schools
 - Wages and salaries in cash
 - Old-age pensions

Answers

1. (c) 2. (d) 3. (b) 4. (b) 5. (d) 6. (d) 7. (c) 8. (d) 9. (a) 10. (d)
 11. (b) 12. (c) 13. (c) 14. (b) 15. (d) 16. (d) 17. (d) 18. (c) 19. (c) 20. (d)

B. Fill in the Blanks

Choose appropriate word and fill in the blank:

- _____ is the market value of final goods and services produced in the economy during the period of one year. (GDP_{MP}/NDP_{MP})
- Value added method is also known as _____. (Industrial Origin Method/Factor Payment Method)
- Value of Output = Sales, if entire output of the year is _____ by the producers during the year. (sold/stocked)
- _____ include land, labour, capital and entrepreneurship. (Factor inputs/Non-factor inputs)
- _____ is that part of the profit which is distributed among the shareholders. (Distributed profit/Undistributed profit)
- Sum total of factor incomes generated within the domestic territory of a country during an accounting year is called _____. (domestic income/national income)
- Commissions paid on the sale and purchase of second-hand goods _____ included in national income. (are/are not)
- _____ is used to avoid the problem of double counting. (Value Added Method/Expenditure Method)
- Income tax is treated as _____ in the estimation of national income. (factor income/transfer income)
- _____ investment refers to change in stock during the year. (Fixed/Inventory)

Answers

1. GDP_{MP} 2. Industrial Origin Method 3. sold 4. Factor inputs
 5. Distributed profit 6. domestic income 7. are
 8. Value Added Method 9. transfer income 10. Inventory

C. True or False

State whether the following statements are True or False:

- Goods used as inputs are called intermediate goods. (True/False)
- In case of mixed income, factors of production are hired/purchased from the market. (True/False)

3. In the general government sector, production is meant only for collective consumption. (True/False)
4. Transfer payments do not cause any value addition in the economy. (True/False)
5. Value added includes the value of intermediate goods used in production. (True/False)
6. According to Distributed Share Method, national income is estimated in terms of factor payments during an accounting year. (True/False)
7. Undistributed profit is retained by the firms to meet some contingent expenses. (True/False)
8. Non-durable consumer goods are repeatedly used for several years. (True/False)
9. Rice produced and consumed by the farming families themselves is not included in national income. (True/False)
10. Retirement pensions are like a deferred wage. (True/False)

Answers

1. True 2. False 3. True 4. True 5. False 6. True 7. True 8. False 9. False 10. True

D. Matching the Correct Statements

I. From the set of statements given in Column I and Column II, choose the correct pair of statements:

Column I	Column II
(a) Imputed rent of owner occupied houses	(i) Included in the estimation of national income
(b) Net exports	(ii) Difference between imports and exports during an accounting year
(c) Pension on retirement	(iii) Old-age pension
(d) Expenditure on second-hand goods	(iv) Included in the estimation of national income
(e) Gifts from abroad	(v) Factor payments

Answer

(a) Imputed rent of owner occupied houses—(i) Included in the estimation of national income

II. Identify the correct sequence of alternatives given in Column II by matching them with respective items in Column I:

Column I	Column II
(a) Old-age pensions	(i) A component of corporate profit
(b) Value of non-factor inputs	(ii) Closing Stock – Opening Stock
(c) Corporate tax	(iii) Factor Payment Method
(d) Change in stock	(iv) Unilateral payments
(e) Income method	(v) Intermediate consumption

Answers

(a)—(iv), (b)—(v), (c)—(i), (d)—(ii), (e)—(iii)

E. 'Very Short Answer' Objective Type Questions

1. Name the methods for measuring national income.

Ans. (i) Product method or value added method, (ii) Income method, and (iii) Expenditure method.

2. What is meant by value added method?

Ans. Value added method is that method which measures GDP as the sum total of value addition by all producing units within the domestic territory of a country.

3. What do you mean by the error of double counting?

Ans. Error of double counting occurs when the value of some goods produced in the economy is counted more than once in the estimation of national income. **Example:** Entire value of wheat sold by the farmers is considered along with the value of wheat purchased by the miller who uses wheat as an input for producing wheat flour.

4. What is meant by income method?

Ans. Income method is that method which measures national income as the sum total of factor incomes (compensation of employees, rent, interest and profit) earned by normal residents of a country during an accounting year.

5. What is meant by expenditure method?

Ans. Expenditure method is that method which measures national income in terms of the expenditure (consumption expenditure + investment expenditure) on the purchase of final goods and services produced in the economy during the period of an accounting year.

6. How is expenditure on final goods and services produced within the domestic territory identical with GDP_{MP} ?

Ans. Expenditure on final goods and services produced within the domestic territory is identical with GDP_{MP} because goods and services are purchased at the market price, and GDP_{MP} refers to the market price of goods and services produced within the domestic territory of a country.

7. Why should the producers maintain inventory stocks?

Ans. Inventory stocks of finished goods are maintained to cope with demand for these goods in the near future. Inventory stocks of raw material are maintained to avoid all time dependence on the market which is full of uncertainties.

8. Why are exports included in the estimation of domestic income?

Ans. Exports are included in the estimation of domestic income because exports are a part of domestically produced goods and services, or because exports are a part of goods and services produced within the domestic territory of a country.

9. Why are imports considered as a negative item in the estimation of domestic income?

Ans. Imports are considered as a negative item in the estimation of domestic income because imports are not an expenditure on the domestically produced goods and services in an accounting year. It is an expenditure on the goods produced abroad.

10. How is net export different from net factor income from abroad?

Ans. Net export refers to the difference between exports and imports during an accounting year.

$$\text{Net Exports} = \text{Exports} - \text{Imports}$$

Net factor income from abroad refers to:

Factor income earned by our residents from rest of the world

– Factor income earned by non-residents from the domestic territory of our country.

2. Reason-based Questions (Comprehension of the Subject-matter)

Read the following statements carefully. Write True or False with a reason.

1. Value addition occurs even when goods do not undergo any material transformation.
Ans. True. Value addition occurs even when goods are purchased for resale, without any material transformation.
2. Export of goods is not a part of expenditure on the domestic production.
Ans. False. Export of goods is a part of the expenditure on the domestic production because it is the foreign demand for domestic product.
3. 'Change in stock' is not a stock variable.
Ans. True. Change in stock is measured per unit of time period. Accordingly, it is a flow variable.
4. Change in stock is not a component of aggregate expenditure in the economy.
Ans. False. Change in stock as a part of investment expenditure is a component of aggregate expenditure in the economy.
5. Money spent by the NRIs settled abroad on the on-line purchase of domestic products is a transfer payment.
Ans. False. Any on-line purchase of domestic products by the people settled abroad is to be treated as exports.
6. Undistributed profits are not a part of domestic factor income.
Ans. False. Undistributed profits are retained earnings of the firms. These are a part of domestic factor income.
7. GDP is estimated only in the context of a closed economy.
Ans. False. GDP is estimated in the context of an open economy as well. 'Exports – imports' are a part of GDP, and are related to an open economy.
8. Remittances by the NRIs are a part of our national income.
Ans. False. Remittances by the NRIs are transfer payments.
9. Mixed income of self-employed includes transfer payments.
Ans. False. Mixed income of the self-employed includes only factor incomes.
10. Compensation of employees includes compensation received after retirement.
Ans. True. Compensation of employees = Wages and salaries in cash + Payment in kind + Employer's contribution to social security schemes + Pension on retirement.
11. Capital formation includes capital goods only.
Ans. False. Change in the inventory stock is an important component of capital stock. And inventory stock includes both capital goods as well as consumer goods.
12. Purchase of machinery from abroad is never considered as intermediate consumption.
Ans. False. Purchase of machinery from abroad is considered as intermediate consumption when it is purchased for purpose of resale.
13. Purchase of machinery from abroad is a part of domestic capital formation.
Ans. True. Purchase of machinery from abroad is a part of domestic capital formation. Because, it adds to the existing stock of capital in the domestic economy.
14. Salaries to Indian employees working in Indian embassies abroad are a part of net factor income from abroad.
Ans. False. Indian embassies abroad are a part of domestic territory of India. Therefore, salaries to Indian employees working in Indian embassies abroad are a part of domestic factor income.

15. **Profits earned by non-resident companies in India are not a part of our domestic income.**
 Ans. False. It is a part of domestic factor income of India because non-resident companies are within the domestic territory of India.
16. **The market value of both final and intermediate goods is included in the estimation of national income.**
 Ans. False. Only the value of final goods is included in the estimation of national income. Reason: The value of intermediate goods is reflected in the value of final goods.
17. **Expenditure on the purchase of second-hand plant and machinery from rest of the world is a part of domestic capital formation.**
 Ans. True. Expenditure on the purchase of second-hand plant and machinery from rest of the world is a part of domestic capital formation. Because, it adds to the stock of capital in the domestic economy.
18. **Expenditure by the households on the construction of residential buildings should not be treated as investment expenditure.**
 Ans. False. Expenditure on the construction of residential buildings by the households is a part of investment expenditure. Because, residential buildings are income generating fixed assets.
19. **Imputed rent on owner occupied houses does not involve any payment to others. Accordingly, it should not be included in the estimation of national income.**
 Ans. False. Imputed rent is included in the estimation of national income as a component of rent. Houses are income generating assets, no matter who occupies them.
20. **Goods produced but retained for self-use (and not sold in the market) are not included in the estimation of national income.**
 Ans. False. Goods produced and retained for self-use are included in the estimation of national income. Because these goods involve value-addition.
21. **Free dress provided to nurses by the hospital is included in the estimation of national income.**
 Ans. False. Free dress provided to nurses by the hospital is not included in the estimation of national income if the dress is a uniform provided by the hospital at the time of work. It is to be treated as an intermediate consumption.
22. **Investment on the purchase of shares is a part of net capital formation.**
 Ans. False. Net capital formation leads to increase in the stock of capital whereas shares only lead to the transfer of ownership.
23. **In the estimation of GDP (using expenditure method), we focus only on expenditure by the residents of a country.**
 Ans. False. In the estimation of GDP, we include all expenditure on the domestically produced goods both by the residents as well as non-residents of a country.
24. **Income from exports is a part of net factor income from abroad.**
 Ans. False. Income from exports is a part of net exports and therefore, a component of gross domestic product.

3. HOTS & Applications

1. **Is net factor income from abroad zero in case exports = imports?**
 Ans. No. Net factor income from abroad is the difference between the factor income earned by normal residents of a country from abroad and the factor income earned by non-residents in our country. It has nothing to do with exports and imports.

2. Is brokerage paid to Real Estate Agents on the sale and purchase of only new (and not the old) houses included in the estimation of national income?

Ans. No. Brokerage paid to Real Estate Agents on the sale and purchase of new as well as old houses is included in the estimation of national income. Reason: Brokerage relates to payment for services, no matter on new or old houses.

3. Show how the sum of value added is equal to sum of factor incomes.

Ans. All value added is distributed as factor incomes. Therefore, sum total of value added is bound to be equal to sum total of factor incomes.

4. Do you think income in the form of capital gains is a part of capital formation?

Ans. Income in the form of capital gains means income accruing to the individuals on account of increase in prices of land, shares, bonds, etc. They do not add to the stock of physical capital. Hence, taking income in the form of capital gains as capital formation is wrong.

5. National income exceeds domestic income only when exports are greater than imports. Comment.

Ans. The given statement is incorrect. When factor income from abroad is greater than factor income to abroad, national income exceeds domestic income. Exports/imports have nothing to do with net factor income from abroad.

6. Only those goods are included in the estimation of domestic product which are sold or purchased in domestic market of a country. Defend or refute.

Ans. The above statement is incorrect. Exports are also a part of domestic product. Exports include goods produced in the domestic economy and sold in rest of the world.

7. How are dividends, corporate taxes and undistributed profits treated in national income?

Ans. (i) **Dividends:** These are included in the estimation of national income as these are a part of factor payments.

(ii) **Corporate Taxes:** These are not included, as all taxes are transfer payments.

(iii) **Undistributed Profits:** These are retained earnings of the firms and are a part of factor payments. Therefore, these are included in the estimation of national income.

8. Giving reason, explain the treatment assigned to the following while estimating national income:

(i) Expenditure on maintenance of an office building.

(ii) Expenditure on adding a floor to the office building.

Ans. (i) Expenditure on maintenance of an office building is not included in national income, as it is a part of intermediate consumption.

(ii) Expenditure on adding a floor to the office building is included in national income because it is a part of investment expenditure or capital formation.

9. Calculate Operating Surplus from the following data:

Items	(₹ in crore)
(i) Compensation of employees	300
(ii) Indirect taxes	200
(iii) Consumption of fixed capital	100
(iv) Subsidies	50
(v) Gross domestic product at market price	600

Ans. Net Domestic Product at Factor Cost

= Gross domestic product at market price – Consumption of fixed capital – Indirect taxes + Subsidies

= ₹ 600 crore – ₹ 100 crore – ₹ 200 crore + ₹ 50 crore

= ₹ 350 crore

Operating Surplus

= Net domestic product at factor cost – Compensation of employees

= ₹ 350 crore – ₹ 300 crore

= ₹ 50 crore

Operating surplus = ₹ 50 crore.

10. From the following data relating to a firm, calculate its Net Value Added at Factor Cost:

Items	(₹ in lakh)
(i) Subsidy	40
(ii) Sales	800
(iii) Depreciation	30
(iv) Exports	100
(v) Closing stock	20
(vi) Opening stock	50
(vii) Intermediate purchases	500
(viii) Purchase of machinery for own use	200
(ix) Import of raw material	60

Ans. Gross Value Added at Market Price (GVA_{MP})

= Sales + Change in stock (Closing stock – Opening stock) – Intermediate consumption

= ₹ 800 lakh + (₹ 20 lakh – ₹ 50 lakh) – ₹ 500 lakh

= ₹ 800 lakh – ₹ 30 lakh – ₹ 500 lakh

= ₹ 270 lakh

Net Value Added at Factor Cost

= GVA_{MP} – Depreciation + Subsidy

= ₹ 270 lakh – ₹ 30 lakh + ₹ 40 lakh

= ₹ 280 lakh

Net value added at factor cost = ₹ 280 lakh.

[Note: Exports are treated as part of total sales.]

11. Calculate Gross Fixed Capital Formation from the following data:

Items	(₹ in crore)
(i) Private final consumption expenditure	1,000
(ii) Government final consumption expenditure	500
(iii) Net exports	(–) 50
(iv) Net factor income from abroad	20
(v) Gross domestic product at market price	2,500
(vi) Opening stock	300
(vii) Closing stock	200

Ans. Gross Fixed Capital Formation

= Gross domestic product at market price – Private final consumption expenditure

– Government final consumption expenditure – Net exports – Change in stock (Closing stock

– Opening stock)

$$\begin{aligned}
&= ₹ 2,500 \text{ crore} - ₹ 1,000 \text{ crore} - ₹ 500 \text{ crore} - (-) ₹ 50 \text{ crore} - (₹ 200 \text{ crore} - ₹ 300 \text{ crore}) \\
&= ₹ 2,500 \text{ crore} - ₹ 1,000 \text{ crore} - ₹ 500 \text{ crore} + ₹ 50 \text{ crore} + ₹ 100 \text{ crore} \\
&= ₹ 1,150 \text{ crore}
\end{aligned}$$

Gross fixed capital formation = ₹ 1,150 crore.

12. Calculate Net Value Added at Factor Cost from the following data:

Items	(₹ in crore)
(i) Purchase of machinery to be used in the production unit	100
(ii) Sales	200
(iii) Intermediate costs	90
(iv) Indirect taxes	12
(v) Change in stock	10
(vi) Excise duty	6
(vii) Stock of raw material	5

Ans. Gross Value Added at Market Price

$$\begin{aligned}
&= \text{Sales} + \text{Change in stock} - \text{Intermediate costs} \\
&= ₹ 200 \text{ crore} + ₹ 10 \text{ crore} - ₹ 90 \text{ crore} \\
&= ₹ 120 \text{ crore}
\end{aligned}$$

Net Value Added at Factor Cost

$$\begin{aligned}
&= \text{Gross value added at market price} - \text{Indirect tax} \\
&= ₹ 120 \text{ crore} - ₹ 12 \text{ crore} \\
&= ₹ 108 \text{ crore}
\end{aligned}$$

Net value added at factor cost = ₹ 108 crore.

[Note: Indirect taxes include excise duty.]

13. From the following data calculate Gross National Product at Factor Cost by (a) Income Method, and (b) expenditure method:

Items	(₹ in crore)
(i) Net domestic capital formation	500
(ii) Compensation of employees	1,850
(iii) Consumption of fixed capital	100
(iv) Government final consumption expenditure	1,100
(v) Private final consumption expenditure	2,600
(vi) Rent	400
(vii) Dividend	200
(viii) Interest	500
(ix) Net exports	(-) 100
(x) Profit	1,100
(xi) Net factor income from abroad	(-) 50
(xii) Net indirect taxes	250

Ans. (a) Income Method

Gross National Product at Factor Cost

$$= \text{Compensation of employees} + \text{Operating surplus (Rent} + \text{Interest} + \text{Profit)} + \text{Consumption of fixed capital} + \text{Net factor income from abroad}$$

$$\begin{aligned}
&= ₹ 1,850 \text{ crore} + (₹ 400 \text{ crore} + ₹ 500 \text{ crore} + ₹ 1,100 \text{ crore}) + ₹ 100 \text{ crore} + (-) ₹ 50 \text{ crore} \\
&= ₹ 1,850 \text{ crore} + ₹ 2,000 \text{ crore} + ₹ 100 \text{ crore} - ₹ 50 \text{ crore} \\
&= ₹ 3,900 \text{ crore}
\end{aligned}$$

(b) Expenditure Method

Gross National Product at Factor Cost

$$\begin{aligned}
&= \text{Private final consumption expenditure} + \text{Government final consumption expenditure} + \text{Gross domestic capital formation} + \text{Net exports} - \text{Net indirect taxes} + \text{Net factor income from abroad} \\
&= ₹ 2,600 \text{ crore} + ₹ 1,100 \text{ crore} + (₹ 500 \text{ crore} + ₹ 100 \text{ crore}) + (-) ₹ 100 \text{ crore} - ₹ 250 \text{ crore} \\
&\quad + (-) ₹ 50 \text{ crore} \\
&= ₹ 2,600 \text{ crore} + ₹ 1,100 \text{ crore} + ₹ 600 \text{ crore} - ₹ 100 \text{ crore} - ₹ 250 \text{ crore} - ₹ 50 \text{ crore} \\
&= ₹ 3,900 \text{ crore}
\end{aligned}$$

(a) Gross national product at factor cost (by income method) = ₹ 3,900 crore.

(b) Gross national product at factor cost (by expenditure method) = ₹ 3,900 crore.

14. The government exports goods worth ₹ 60,000 and imports goods worth ₹ 65,000. Domestic final consumption expenditure = ₹ 5,00,000, and there is no change in the stock of national capital. Replacement investment = ₹ 10,000. There are no subsidies; rather the producers are to pay excise duty of ₹ 5,000 to the government. Find factor income generated within the domestic economy.

Ans. Factor Income

$$\begin{aligned}
&= \text{Exports} - \text{Imports} + \text{Domestic final consumption expenditure} - \text{Excise duty} \\
&= ₹ 60,000 - ₹ 65,000 + ₹ 5,00,000 - ₹ 5,000 \\
&= ₹ 4,90,000
\end{aligned}$$

Factor income = ₹ 4,90,000.

15. Given the following data, find Net Value Added at Factor Cost by a farmer producing wheat:

Items	(₹ in crore)
(i) Sale of wheat by the farmer in the local market	6,80,000
(ii) Purchase of a tractor	5,00,000
(iii) Procurement of wheat by the government from the farmer	20,000
(iv) Consumption of wheat by the farming family during the year	5,000
(v) Subsidy	2,000
(vi) Expenditure on the maintenance of existing capital stock	10,000

Ans. Net Value Added at Factor Cost

$$\begin{aligned}
&= \text{Sale of wheat by the farmer in the local market} + \text{Procurement of wheat by the government from the farmer} + \text{Consumption of wheat by the farming family during the year} + \text{Subsidy} \\
&\quad - \text{Expenditure on the maintenance of existing capital stock} \\
&= ₹ 6,80,000 \text{ crore} + ₹ 20,000 \text{ crore} + ₹ 5,000 \text{ crore} + ₹ 2,000 \text{ crore} - ₹ 10,000 \text{ crore} \\
&= ₹ 6,97,000 \text{ crore}
\end{aligned}$$

Net value added at factor cost = ₹ 6,97,000 crore.

16. From the following data, calculate National Income:

Items	(₹ in crore)
(i) Profit	1,500
(ii) Rent	1,300

(iii) Net indirect taxes	350
(iv) Mixed income of self-employed	600
(v) Compensation of employees	3,000
(vi) Reimbursement to the employees for medical expenses	300
(vii) Depreciation	200
(viii) Excess of factor income to rest of the world over factor income from rest of the world	50
(ix) Excess of imports over exports	40
(x) Interest	1,100

Ans. National Income

$$\begin{aligned}
 &= \text{Compensation of employees} + \text{Profit} + \text{Rent} + \text{Interest} + \text{Mixed income of self-employed} - \text{Excess of factor income to rest of the world over factor income from rest of the world} \\
 &= ₹ 3,000 \text{ crore} + ₹ 1,500 \text{ crore} + ₹ 1,300 \text{ crore} + ₹ 1,100 \text{ crore} + ₹ 600 \text{ crore} - ₹ 50 \text{ crore} \\
 &= ₹ 7,450 \text{ crore}
 \end{aligned}$$

National income = ₹ 7,450 crore.

17. From the following data estimate: (a) Net Indirect Taxes, and (b) Net Domestic Product at Factor Cost.

Items	(₹ in crore)
(i) Net national product at market price	1,400
(ii) Net factor income from abroad	(-) 20
(iii) Gross national product at factor cost	1,300
(iv) Consumption of fixed capital	100
(v) National debt interest	18

Ans. (a) Net Indirect Taxes

$$\begin{aligned}
 &= \text{Net national product at market price} - \text{Net national product at factor cost (Gross national product at factor cost} - \text{Consumption of fixed capital)} \\
 &= ₹ 1,400 \text{ crore} - (₹ 1,300 \text{ crore} - ₹ 100 \text{ crore}) \\
 &= ₹ 1,400 \text{ crore} - ₹ 1,200 \text{ crore} \\
 &= ₹ 200 \text{ crore}
 \end{aligned}$$

(b) Net Domestic Product at Factor Cost

$$\begin{aligned}
 &= \text{Gross national product at factor cost} - \text{Consumption of fixed capital} - \text{Net factor income from abroad} \\
 &= ₹ 1,300 \text{ crore} - ₹ 100 \text{ crore} - (-) ₹ 20 \text{ crore} \\
 &= ₹ 1,300 \text{ crore} - ₹ 100 \text{ crore} + ₹ 20 \text{ crore} \\
 &= ₹ 1,220 \text{ crore}
 \end{aligned}$$

(a) Net indirect taxes = ₹ 200 crore.

(b) Net domestic product at factor cost = ₹ 1,220 crore.

18. State whether the following statements are true or false. Give reasons for your answer:

(i) Nominal GDP can never be less than Real GDP.

(ii) Gross domestic capital formation is always greater than gross fixed capital formation.

Ans. (i) The statement is false. Nominal GDP can be less than real GDP when price of goods and services prevailing during the base year is greater than the price of goods and services prevailing during the current year.

(ii) The statement is false. We know that,

Gross Domestic Capital Formation = Gross fixed capital formation + Change in stock.

Accordingly, gross domestic capital formation can be less than gross fixed capital formation when change in stock (closing stock – opening stock) is negative.

19. Giving reason, explain the treatment assigned to the following while estimating national income:

(i) Subsidy on the wheat produced.

(ii) Contribution to provident fund by the employees.

(iii) Contribution to provident fund by the employers.

- Ans. (i) Subsidy on the wheat produced is not included while estimating national income. It simply lowers the market value of the final goods and services. It is given to the producers as a transfer payment.
- (ii) Contribution to provident fund by the employees is not separately included in the estimation of national income as it is paid out of their income.
- (iii) Contribution to provident fund by the employers is included in national income because it is paid by the employers on behalf of the employees. It is included in national income as a part of the compensation of employees.

20. *Ceasefire violations by Pakistan have led to the death of many Indian soldiers in Jammu and Kashmir. Will the payment of family pension to the families of the soldiers be included in the estimation of national income?*

Ans. Yes. Because payment of family pension is like payment of the retirement pension. It is related to the employment contract signed by the government with the soldiers.

21. *Mona purchased a car worth ₹ 5,50,000 to commute between her home and the office.*

Would you treat it as an intermediate consumption and therefore not included in the estimation of national income? Justify your answer.

Ans. Car purchased by Mona will not be treated as intermediate good. Because, Mona is not using her car for purpose of value adding through intermediate consumption. Mona's car would be treated as a final good, being finally used by her as a consumer durable. Mona's expenditure on car would be treated as private final consumption expenditure.

22. *In what sense can defence and security services provided by the government be treated as intermediate services?*

Ans. Defence and security services provided by the government can be treated as intermediate services in the sense that these services offer a peaceful environment to the producers for the production of goods and services.

23. *Cash transfer of subsidy on LPG raises annual income of the households.*

Does it mean a rise in domestic income? Justify your answer.

Ans. No. Cash transfer of subsidy is to be treated as transfer payment. Of course, it increases annual income of the households. But this increase is not related to factor services rendered by the households. Accordingly, transfer of cash subsidy does not lead to any rise in domestic income.

4. Analysis & Evaluation

1. How can estimates of GDP using income method and expenditure method be identical when households do not spend their entire income on the purchase of goods and services, and a part of them remain unsold during an accounting year?

Ans. Goods which remain unsold during the year are treated as a part of change in stock during the year. These goods become a part of inventory investment of the producers. Accordingly, income method and expenditure method must yield identical estimates of GDP.

2. Explain the economic value of using net output method for the estimation of GDP.

Ans. Net output method refers to value added method of estimating national income. Because:

$$\text{Output} - \text{Intermediate consumption} = \text{Net output} = \text{Value added.}$$

When we estimate value added by each producing unit in the country, we make an assessment of the level of production activity in the economy. Low value added in the economy (compared to other economies of the world) implies low level of output, and therefore, low level of income and employment. It points to low quality of life of the people.

Since value added is estimated across different sectors of the economy (primary, secondary and tertiary sectors), we are also able to assess the relative contribution of these sectors in GDP. This helps the government to formulate sector wise policies of growth and development.

GST is based on the use of value added method. It is a single tax replacing all indirect taxes in the economy.

5. CBSE Questions—Past 5 years (With Answers or Reference to the Text for Answers)

1. Calculate 'National Income':

Items	(₹ in crore)
(i) Personal tax	80
(ii) Private final consumption expenditure	600
(iii) Undistributed profits	30
(iv) Private income	650
(v) Government final consumption expenditure	100
(vi) Corporate tax	50
(vii) Net domestic fixed capital formation	70
(viii) Net indirect tax	60
(ix) Depreciation	14
(x) Change in stocks	(-) 10
(xi) Net imports	20
(xii) Net factor income to abroad	10

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[CBSE Delhi 2015]

2. Calculate 'Gross National Product at Market Price':

Items	(₹ in crore)
(i) Rent	100
(ii) Net current transfers to rest of the world	30
(iii) Social security contributions by employers	47
(iv) Mixed income	600
(v) Gross domestic capital formation	140
(vi) Royalty	20
(vii) Interest	110
(viii) Compensation of employees	500
(ix) Net domestic capital formation	120
(x) Net factor income from abroad	(-) 10

(xi) Net indirect tax	150
(xii) Profit	200
[Page 410]	[CBSE Delhi 2015]

3. Calculate 'Net Domestic Product at Factor Cost':

Items	(₹ in crore)
(i) Net current transfers to abroad	15
(ii) Private final consumption expenditure	800
(iii) Net imports	(-) 20
(iv) Net domestic capital formation	100
(v) Net factor income to abroad	10
(vi) Depreciation	50
(vii) Change in stocks	17
(viii) Net indirect tax	120
(ix) Government final consumption expenditure	200
(x) Exports	30
[Page 421]	[CBSE Delhi 2015]

4. Giving reasons, explain how should the following be treated in estimation of national income:

- Expenditure by a firm on payment of fees to a chartered accountant.
- Payment of corporate tax by a firm.
- Purchase of refrigerator by a firm for own use.

[Page 439]

[CBSE Delhi 2015]

5. Calculate the 'National Income':

Items	(₹ in crore)
(i) Rent	200
(ii) Net factor income to abroad	10
(iii) National debt interest	15
(iv) Wages and salaries	700
(v) Current transfers from government	10
(vi) Undistributed profits	20
(vii) Corporation tax	30
(viii) Interest	150
(ix) Social security contributions by employers	100
(x) Net domestic product accruing to government	250
(xi) Net current transfers to rest of the world	5
(xii) Dividend	50

[Page 410, 411]

[CBSE (AI) 2015]

6. Calculate 'Net National Product at Market Price':

Items	(₹ in crore)
(i) Transfer payments by government	7
(ii) Government final consumption expenditure	50
(iii) Net imports	(-) 10
(iv) Net domestic fixed capital formation	60

(v) Private final consumption expenditure	300
(vi) Private income	280
(vii) Net factor income to abroad	(-) 5
(viii) Closing stock	8
(ix) Opening stock	8
(x) Depreciation	12
(xi) Corporate tax	60
(xii) Retained earnings of corporations	20

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[CBSE (AI) 2015]

7. Calculate 'Net Domestic Product at Market Price':

Items	(₹ in crore)
(i) Private final consumption expenditure	400
(ii) Opening stock	10
(iii) Consumption of fixed capital	25
(iv) Imports	15
(v) Government final consumption expenditure	90
(vi) Net current transfers to rest of the world	5
(vii) Gross domestic fixed capital formation	80
(viii) Closing stock	20
(ix) Exports	10
(x) Net factor income to abroad	(-) 5

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[CBSE (AI) 2015]

8. Giving reasons, explain how the following should be treated in estimation of national income:

- Payment of interest by a firm to a bank.
- Payment of interest by a bank to an individual.
- Payment of interest by an individual to a bank.

[Page 439]

[CBSE (AI) 2015]

9. Calculate the Gross National Product at Market Price:

Items	(₹ in crore)
(i) Wages and salaries	800
(ii) Personal tax	150
(iii) Operating surplus	200
(iv) Undistributed profits	10
(v) Social security contributions by employers	100
(vi) Corporate tax	50
(vii) Net factor income to abroad	(-) 20
(viii) Personal disposable income	1,200
(ix) Net indirect tax	70
(x) Consumption of fixed capital	30
(xi) Mixed income of self-employed	500
(xii) Royalty	9

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[CBSE (F) 2015]

10. Calculate National Income and Private Income:

Items	(₹ in crore)
(i) Net imports	5
(ii) Net domestic capital formation	15
(iii) Personal income	90
(iv) National debt interest	10
(v) Corporate tax	25
(vi) Government final consumption expenditure	20
(vii) Net factor income to abroad	(-) 5
(viii) Net indirect tax	10
(ix) Undistributed profits	0
(x) Private final consumption expenditure	100
[Page 422]	[CBSE (F) 2015]

11. Calculate Net National Product at Market Price:

Items	(₹ in crore)
(i) Net factor income to abroad	(-) 10
(ii) Net current transfers to abroad	5
(iii) Consumption of fixed capital	40
(iv) Compensation of employees	700
(v) Corporate tax	30
(vi) Undistributed profits	10
(vii) Interest	90
(viii) Rent	100
(ix) Dividends	20
(x) Net indirect tax	110
(xi) Social security contributions by employees	11
[Page 411, 412]	[CBSE (F) 2015]

12. Giving reasons, explain how should the following be treated in estimation of national income:

- (i) Payment of corporate tax by a firm.
- (ii) Purchase of machinery by a factory for own use.
- (iii) Purchase of uniforms for nurses by a hospital.

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[CBSE (F) 2015]

13. Find Net Value Added at Factor Cost:

Items	(₹ in lakh)
(i) Durable use producer goods with a life span of 10 years	10
(ii) Single use producer goods	5
(iii) Sales	20
(iv) Unsold output produced during the year	2
(v) Taxes on production	1
[Page 406]	[CBSE Delhi 2016]

14. Find Net Value Added at Market Price:

Items	(₹ in lakh)
(i) Fixed capital good with a life span of 5 years	15
(ii) Raw materials	6
(iii) Sales	25
(iv) Net change in stock	(-) 2
(v) Taxes on production	1
[Page 406]	[CBSE Delhi 2016]

15. Find Gross Value Added at Market Price:

Items	(₹ in lakh)
(i) Depreciation	20
(ii) Domestic sales	200
(iii) Net change in stocks	(-) 10
(iv) Exports	10
(v) Single use producer goods	120
[Page 406, 407]	[CBSE Delhi 2016]

16. Find National Income:

Items	(₹ in crore)
(i) Wages and salaries	1,000
(ii) Net current transfers to abroad	20
(iii) Net factor income paid to abroad	10
(iv) Profit	400
(v) National debt interest	120
(vi) Social security contributions by employers	100
(vii) Current transfers from government	60
(viii) National income accruing to government	150
(ix) Rent	200
(x) Interest	300
(xi) Royalty	50
[Page 412]	[CBSE Delhi 2016]

17. Find Net Domestic Product at Factor Cost:

Items	(₹ in crore)
(i) Rent	200
(ii) Net current transfers to abroad	10
(iii) National debt interest	60
(iv) Corporate tax	100
(v) Compensation of employees	900
(vi) Current transfers by government	150
(vii) Interest	400
(viii) Undistributed profits	50
(ix) Dividend	250

(x) Net factor income to abroad	(-) 10
(xi) Income accruing to government	120

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[CBSE Delhi 2016]

18. Find Net National Product at Market Price:

Items	(₹ in crore)
(i) Personal taxes	200
(ii) Wage and salaries	1,200
(iii) Undistributed profit	50
(iv) Rent	300
(v) Corporation tax	200
(vi) Private income	2,000
(vii) Interest	400
(viii) Net indirect tax	300
(ix) Net factor income to abroad	20
(x) Profit	500
(xi) Social security contributions by employers	250

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[CBSE Delhi 2016]

19. Find Gross National Product at Market Price:

Items	(₹ in crore)
(i) Private final consumption expenditure	800
(ii) Net current transfers to abroad	20
(iii) Net factor income to abroad	(-) 10
(iv) Government final consumption expenditure	300
(v) Net indirect tax	150
(vi) Net domestic capital formation	200
(vii) Current transfers from government	40
(viii) Depreciation	100
(ix) Net imports	30
(x) Income accruing to government	90
(xi) National debt interest	50

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[CBSE (AI) 2016]

20. Calculate Net National Product at Market Price:

Items	(₹ in crore)
(i) Net current transfers to abroad	10
(ii) Private final consumption expenditure	500
(iii) Current transfers from government	30
(iv) Net factor income to abroad	20
(v) Net exports	(-) 20
(vi) Net indirect tax	120
(vii) National debt interest	70
(viii) Net domestic capital formation	80

(ix) Income accruing to government	60
(x) Government final consumption expenditure	100

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[CBSE (AI) 2016]

21. Calculate National Income:

Items	(₹ in crore)
(i) Corporation tax	100
(ii) Private final consumption expenditure	900
(iii) Personal income tax	120
(iv) Government final consumption expenditure	200
(v) Undistributed profits	50
(vi) Change in stocks	(-) 20
(vii) Net domestic fixed capital formation	120
(viii) Net imports	10
(ix) Net indirect tax	150
(x) Net factor income from abroad	(-) 10
(xi) Private income	1,000

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[CBSE (AI) 2016]

22. Calculate Net Domestic Product at Factor Cost:

Items	(₹ in crore)
(i) Private final consumption expenditure	8,000
(ii) Government final consumption expenditure	1,000
(iii) Exports	70
(iv) Imports	120
(v) Consumption of fixed capital	60
(vi) Gross domestic fixed capital formation	500
(vii) Change in stock	100
(viii) Factor income to abroad	40
(ix) Factor income from abroad	90
(x) Indirect taxes	700
(xi) Subsidies	50
(xii) Net current transfers to abroad	(-) 30

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[CBSE Delhi 2017]

23. Calculate National Income:

Items	(₹ in crore)
(i) Net factor income to abroad	(-) 50
(ii) Net indirect taxes	800
(iii) Net current transfers from rest of the world	100
(iv) Net imports	200
(v) Private final consumption expenditure	5,000
(vi) Government final consumption expenditure	3,000
(vii) Gross domestic capital formation	1,000
(viii) Consumption of fixed capital	150

(ix) Change in stock	(-) 50
(x) Mixed income	4,000
(xi) Scholarship to students	80

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[CBSE Delhi 2017]

24. Calculate Net National Product at Market Price:

Items	(₹ in crore)
(i) Gross domestic fixed capital formation	400
(ii) Private final consumption expenditure	8,000
(iii) Government final consumption expenditure	3,000
(iv) Change in stock	50
(v) Consumption of fixed capital	40
(vi) Net indirect taxes	100
(vii) Net exports	(-) 60
(viii) Net factor income to abroad	(-) 80
(ix) Net current transfers from abroad	100
(x) Dividend	100

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[CBSE Delhi 2017]

25. How will you treat the following while estimating domestic product of a country? Give reasons for your answer:

- Profits earned by branches of country's bank in other countries.
- Gifts given by an employer to his employees on independence day.
- Purchase of goods by foreign tourists.

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[CBSE Delhi 2017]

26. Explain the precautions that should be taken while estimating national income by expenditure method.

[CBSE (AI) 2017]

What precautions should be taken while estimating national income by expenditure method? Explain.

[CBSE (F) 2017]

[Page 96, 97]

27. Explain the precautions that are taken while estimating national income by value added method.

[CBSE (AI) 2017]

Or

What precautions should be taken while estimating national income by value added method? Explain.

[Page 84, 85]

[CBSE (F) 2017]

28. Calculate National Income:

Items	(₹ in crore)
(i) Compensation of employees	2,000
(ii) Rent	400
(iii) Profit	900
(iv) Dividend	100
(v) Interest	500
(vi) Mixed income of self-employed	7,000
(vii) Net factor income to abroad	50

(viii) Net exports	60
(ix) Net indirect taxes	300
(x) Depreciation	150
(xi) Net current transfers to abroad	30

[Page 413, 414]

[CBSE (AI) 2017]

29. Calculate the Net National Product at Market Price:

Items	(₹ in crore)
(i) Mixed income of self-employed	8,000
(ii) Depreciation	200
(iii) Profit	1,000
(iv) Rent	600
(v) Interest	700
(vi) Compensation of employees	3,000
(vii) Net indirect taxes	500
(viii) Net factor income to abroad	60
(ix) Net exports	(-) 50
(x) Net current transfers to abroad	20

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[CBSE (AI) 2017]

30. Calculate the Gross National Product at Market Price:

Items	(₹ in crore)
(i) Compensation of employees	2,500
(ii) Profit	700
(iii) Mixed income of self-employed	7,500
(iv) Government final consumption expenditure	3,000
(v) Rent	400
(vi) Interest	350
(vii) Net factor income from abroad	50
(viii) Net current transfers to abroad	100
(ix) Net indirect taxes	150
(x) Depreciation	70
(xi) Net exports	40

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[CBSE (AI) 2017]

31. Will the following be included in the domestic product of India? Give reasons for your answer.

- Profits earned by foreign companies in India.
- Salaries of Indians working in the Russian Embassy in India.
- Profits earned by a branch of State Bank of India in Japan.

[Page 440]

[CBSE (AI) 2017]

32. Will the following be included in the national income of India? Give reasons for your answer.

- Financial assistance to flood victims.
- Profits earned by the branches of a foreign bank in India.
- Salaries of Indians working in the American Embassy in India.

[Page 440]

[CBSE (AI) 2017]

33. Explain 'mixed income of self-employed' and give an example.

[CBSE (F) 2017]

[Page 90]

34. Calculate National Income:

Items	(₹ in crore)
(i) Profit	1,000
(ii) Mixed income of self-employed	15,000
(iii) Dividends	200
(iv) Interest	400
(v) Compensation of employees	7,000
(vi) Net factor income to abroad	100
(vii) Consumption of fixed capital	400
(viii) Net exports	(-) 200
(ix) Net indirect taxes	800
(x) Net current transfers to rest of the world	40
(xi) Rent	500

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[CBSE (F) 2017]

35. Calculate Net National Product at Market Price:

Items	(₹ in thousand crore)
(i) Compensation of employees	250
(ii) Mixed income of self-employed	600
(iii) Profit	80
(iv) Rent	30
(v) Interest	40
(vi) Net factor income to abroad	(-) 10
(vii) Net exports	15
(viii) Consumption of fixed capital	20
(ix) Net indirect taxes	10
(x) Net current transfers to abroad	8

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36. Calculate National Income:

Items	(₹ in crore)
(i) Compensation of employees	2,000
(ii) Profit	800
(iii) Rent	300
(iv) Interest	250
(v) Mixed income of self-employed	7,000
(vi) Net current transfers to abroad	200
(vii) Net exports	(-) 100
(viii) Net indirect taxes	1,500
(ix) Net factor income to abroad	60
(x) Consumption of fixed capital	120

[Page 416]

[CBSE (F) 2017]

37. Calculate (a) Operating Surplus, and (b) Domestic Income:

Items	(₹ in crore)
(i) Compensation of employees	2,000
(ii) Rent and interest	800
(iii) Indirect taxes	120
(iv) Corporation tax	460
(v) Consumption of fixed capital	100
(vi) Subsidies	20
(vii) Dividend	940
(viii) Undistributed profits	300
(ix) Net factor income to abroad	150
(x) Mixed income	200

[Page 416]

[CBSE 2018]

38. Define the problem of double counting in the computation of national income. State any two approaches to correct the problem of double counting.

[CBSE 2019 (58/1/1)]

[Page 85, 86]

39. Given the following data, find the missing value of 'Government Final Consumption Expenditure' and 'Mixed Income of Self-employed'.

Items	(₹ in crore)
(i) National income	71,000
(ii) Gross domestic capital formation	10,000
(iii) Government final consumption expenditure	?
(iv) Mixed income of self-employed	?
(v) Net factor income from abroad	1,000
(vi) Net indirect taxes	2,000
(vii) Profits	1,200
(viii) Wages and salaries	15,000
(ix) Net exports	5,000
(x) Private final consumption expenditure	40,000
(xi) Consumption of fixed capital	3,000
(xii) Operating surplus	30,000

[Page 432, 433]

[CBSE 2019 (58/1/1)]

40. Given the following data, find the missing values of 'Private Final Consumption Expenditure' and 'Operating Surplus'.

Items	(₹ in crore)
(i) National income	50,000
(ii) Net indirect taxes	1,000
(iii) Private final consumption expenditure	?
(iv) Gross domestic capital formation	17,000
(v) Profits	1,000
(vi) Government final consumption expenditure	12,500
(vii) Wages and salaries	20,000

(viii) Consumption of fixed capital	700
(ix) Mixed income of self-employed	13,000
(x) Operating surplus	?
(xi) Net factor income from abroad	500
(xii) Net exports	2,000

[Page 433, 434]

[CBSE 2019 (58/1/2)]

41. Given the following data, find the missing values of 'Gross Domestic Capital Formation' and 'Wages and Salaries'.

Items	(₹ in crore)
(i) Mixed income of self-employed	3,500
(ii) Net indirect taxes	300
(iii) Wages and salaries	?
(iv) Government final consumption expenditure	14,000
(v) Net exports	3,000
(vi) Consumption of fixed capital	300
(vii) Net factor income from abroad	700
(viii) Operating surplus	12,000
(ix) National income	30,000
(x) Profits	500
(xi) Gross domestic capital formation	?
(xii) Private final consumption expenditure	11,000

[Page 434]

[CBSE 2019 (58/1/3)]

42. Define the following:

- Value addition.
- Income from property and entrepreneurship.

[Page 82, 89]

[CBSE 2019 (58/2/1)]

43. Given the following data, find the values of 'Gross Domestic Capital Formation' and 'Operating Surplus'.

Items	(₹ in crore)
(i) National income	22,100
(ii) Wages and salaries	12,000
(iii) Private final consumption expenditure	7,200
(iv) Net indirect taxes	700
(v) Gross domestic capital formation	?
(vi) Depreciation	500
(vii) Government final consumption expenditure	6,100
(viii) Mixed income of self-employed	4,800
(ix) Operating surplus	?
(x) Net exports	3,400
(xi) Rent	1,200
(xii) Net factor income from abroad	(-) 150

[Page 434, 435]

[CBSE 2019 (58/2/1)]

44. Given the following data, find the values of 'Government Final Consumption Expenditure' and 'Mixed Income of Self-employed':

Items	(₹ in crore)
(i) National income	7,100
(ii) Government final consumption expenditure	?
(iii) Gross domestic capital formation	1,000
(iv) Mixed income of self-employed	?
(v) Net indirect taxes	200
(vi) Net factor income from abroad	100
(vii) Private final consumption expenditure	4,000
(viii) Consumption of fixed capital	300
(ix) Profits	120
(x) Wages and salaries	1,500
(xi) Net exports	500
(xii) Operating surplus	3,000

[Page 435, 436]

[CBSE 2019 (58/3/1)]

45. Given the following data, find the values of 'Operating Surplus' and 'Gross Domestic Capital Formation':

Items	(₹ in crore)
(i) Government final consumption expenditure	2,000
(ii) Mixed income of self-employed	1,500
(iii) National income	12,000
(iv) Net factor income from abroad	200
(v) Operating surplus	?
(vi) Profits	500
(vii) Private final consumption expenditure	6,000
(viii) Net indirect taxes	700
(ix) Net exports	1,800
(x) Consumption of fixed capital	600
(xi) Gross domestic capital formation	?
(xii) Wages and salaries	6,000

[Page 436]

[CBSE 2019 (58/3/2)]

46. Given the following data, find the values of 'Operating Surplus' and 'Net Exports':

Items	(₹ in crore)
(i) Mixed income of self-employed	700
(ii) Net factor income from abroad	150
(iii) Private final consumption expenditure	2,200
(iv) Profits	200
(v) Net indirect taxes	150
(vi) National income	5,000
(vii) Gross domestic capital formation	1,100
(viii) Wages and salaries	2,200
(ix) Net exports	?

(x) Government final consumption expenditure	1,300
(xi) Consumption of fixed capital	200
(xii) Operating surplus	?

[Page 437]

[CBSE 2019 (58/3/3)]

47. (a) Define 'net factor income from abroad'. How is it different from 'net exports'?
 (b) Calculate the value of "Rent" from the following data:

Items	(₹ in crore)
(i) Gross domestic product at market price	18,000
(ii) Mixed income of self-employed	7,000
(iii) Subsidies	250
(iv) Interest	800
(v) Rent	?
(vi) Profit	975
(vii) Compensation of employees	6,000
(viii) Consumption of fixed capital	1,000
(ix) Indirect tax	2,000

[Page 95, 106, 417]

[CBSE 2019 (58/4/1)]

48. (a) Define net exports. How is it different from net factor income from abroad?
 (b) Calculate value of "Interest" from the following data:

Items	(₹ in crore)
(i) Indirect tax	1,500
(ii) Subsidies	700
(iii) Profits	1,100
(iv) Consumption of fixed capital	700
(v) Gross domestic product at market price	17,500
(vi) Compensation of employees	9,300
(vii) Interest	?
(viii) Mixed income of self-employed	3,500
(ix) Rent	800

[Page 95, 106, 417]

[CBSE 2019 (58/4/2)]

49. (a) Define 'value of output'. How is it different from 'value addition' ?
 (b) Calculate the value of "Mixed Income of Self-employed" from the following data:

Items	(₹ in crore)
(i) Compensation of employees	17,300
(ii) Interest	1,200
(iii) Consumption of fixed capital	1,100
(iv) Mixed income of self-employed	?
(v) Subsidies	750
(vi) Gross domestic product at market price	27,500
(vii) Indirect taxes	2,100
(viii) Profits	1,800
(ix) Rent	2,000

[Page 82, 417, 418]

[CBSE 2019 (58/4/3)]

50. Distinguish between net factor income from abroad and net exports. [CBSE 2019 (58/5/1)]
[Page 95, 106]

51. What is meant by the problem of double counting? Discuss briefly the two approaches to avoid this problem. [CBSE 2019 (58/5/1)]
[Page 85, 86]

52. Given the following data, find the values of 'Operating Surplus' and 'Net Exports':

Items	(₹ in crore)
(i) Wages and salaries	2,400
(ii) National income	4,200
(iii) Net exports	?
(iv) Net factor income from abroad	200
(v) Gross domestic capital formation	1,100
(vi) Mixed income of self-employed	400
(vii) Private final consumption expenditure	2,000
(viii) Net indirect taxes	150
(ix) Operating surplus	?
(x) Government final consumption expenditure	1,000
(xi) Consumption of fixed capital	100
(xii) Profits	500

[Page 437, 438]

[CBSE 2019 (58/5/1)]

6. NCERT Questions (With Hints to Answers)

1. What is the difference between planned and unplanned inventory accumulation? Write down the relation between change in inventories and value added of a firm.

[Hint: Planned inventory accumulation refers to desired inventory stock. This is maintained by the producers with a view to exploiting potential demand for his product. Otherwise, the producer might suffer the loss of unfulfilled demand. Unplanned inventory accumulation refers to undesired inventory stock. It arises because demand for the product turns out to be lower than expected. Accordingly, unplanned inventory accumulation leads to losses.

Value Added = Sales, net of intermediate costs + Change in inventory stock (Closing inventory stock – Opening inventory stock).]

2. What are the four factors of production and what are the remunerations to each of these called?

[Hint: The four factors of production are land, labour, capital and entrepreneurship. The remunerations to each of these are called compensation of employees (reward for labour), rent (reward for land), interest (reward for capital) and profit (reward for entrepreneurship).]

3. Why should the aggregate final expenditure of an economy be equal to the aggregate factor payments? Explain.

[Hint: Factor payments are equal to factor incomes. Income is either spent on the purchase of final goods and services or is saved. Expenditure of income on the final goods either causes final consumption expenditure or investment expenditure. To the extent income is saved (or not spent), final goods remain unsold. But unsold goods are treated as a part of inventory investment, and therefore, a part of total investment expenditure in the economy. Hence, aggregate final expenditure of an economy is equal to aggregate factor payments. Algebraically,

$$\begin{aligned} Y &= C + S \\ &= C + I, \text{ because } S = I. \end{aligned}$$

4. Write down the three identities of calculating the GDP of a country by the three methods. Also briefly explain why each of these should give us the same value of GDP.

[Hint:

Three Identities of Calculating GDP

Value Addition	Income Generated	Final Expenditure
Value of output (Sales + Δ Stock) – Intermediate consumption = GVA_{MP} = GDP_{MP}	Compensation of employees + Rent + Interest + Profit + Mixed income of self- employed + Depreciation + Net indirect taxes = GDP_{MP}	Private final consumption expenditure + Government final consumption expenditure + Gross domestic fixed investment + Inventory investment + Export – Import = GDP_{MP}

Value added is identical with income generated because value added (in terms of NDP_{FC}) is distributed as factor incomes among households who are owners of the factors of production. Further GDP_{MP} (in terms of value addition) is identical with expenditure on final goods and services, because value of expenditure is nothing but market price of the domestically produced final goods and services during an accounting year.]

5. Suppose the GDP at market price of a country in a particular year was ₹ 1,100 crore. Net factor income from abroad was ₹ 100 crore. The value of indirect taxes – subsidies was ₹ 150 crore and national income was ₹ 850 crore. Calculate the aggregate value of depreciation.

[Hint: $GDP_{MP} = ₹ 1,100$ crore, NFIA (Net factor income from abroad) = ₹ 100 crore, NIT (Net indirect taxes) = ₹ 150 crore and NNP_{FC} (National income) = ₹ 850 crore.]

$$\begin{aligned}
 NNP_{FC} + NIT &= NNP_{MP} \\
 &= ₹ 850 \text{ crore} + ₹ 150 \text{ crore} \\
 &= ₹ 1,000 \text{ crore} \\
 GDP_{MP} + NFIA &= GNP_{MP} \\
 &= ₹ 1,100 \text{ crore} + ₹ 100 \text{ crore} \\
 &= ₹ 1,200 \text{ crore} \\
 \text{Depreciation} &= GNP_{MP} - NNP_{MP} \\
 &= ₹ 1,200 \text{ crore} - ₹ 1,000 \text{ crore} \\
 &= ₹ 200 \text{ crore.}
 \end{aligned}$$

6. In a single day Raju, the barber, collects ₹ 500 from haircuts; over this day, his equipment depreciates in value by ₹ 50. Of the remaining ₹ 450, Raju pays sales tax worth ₹ 30, takes home ₹ 200 and retains ₹ 220 for improvement and buying of new equipment. He further pays ₹ 20 as income tax from his income. Based on this information, complete Raju's contribution to the following measures of income: (i) Gross Domestic Product, (ii) NNP at market price, (iii) NNP at factor cost.

[Hint: Assuming intermediate consumption = 0 and change in stock (Δ Stock) = 0.]

- (i) $GVA_{MP} = ₹ 500$ (Raju's contribution to GDP)
 (ii) $NVA_{MP} = GVA_{MP} - \text{Depreciation}$
 $= ₹ 500 - ₹ 50 = ₹ 450$ (Raju's contribution to NNP_{MP})
 (iii) $NVA_{FC} = NVA_{MP} - \text{Net indirect taxes}$
 $= ₹ 450 - ₹ 30$
 $= ₹ 420$ (Raju's contribution to NNP_{FC} .)]

7. Miscellaneous Questions and Reference to the Text for Answers

A. Questions of 3 & 4 marks each

1. State any three of the precautions that are necessary while estimating the national income by value added method. [Page 84, 85]
2. Explain the problem of double counting. Also state one of the ways of avoiding this problem. [Page 85, 86]
3. What precautions are taken while measuring national income by income method? [Page 91, 92]
4. Briefly outline the expenditure method of measuring net domestic product of an economy. [Page 94–96]
5. State three precautions to be taken while measuring national income by expenditure method. [Page 96, 97]
6. State three types of expenditures that are not included while estimating national income by expenditure method. Why are these not included? [Page 96, 97]

B. Questions of 6 marks each

1. Explain the product method of estimating national income. [Page 81–83]
2. Explain the income method of estimating national income. [Page 88–90]
3. Explain the expenditure method of estimating national income. [Page 94–96]
4. What precautions are necessary while estimating national income by value added or product method? [Page 84, 85]
5. What precautions are necessary while estimating national income by income method? [Page 91, 92]
6. Explain the precautions required to be taken in estimating national income by expenditure method. [Page 96, 97]

Add-on Questions with Hints

7. Explain the term ‘compensation of employees’ and its components. Giving reasons, state whether the following are treated as compensation of employees:
(i) Gifts by employers, (ii) Bonus.
[Page 89; (i) No, it is a transfer payment, (ii) Yes, it is a component of compensation of employees.]
8. Will the following factor incomes be included in domestic factor income of India? Give reasons for your answer.
(i) Compensation of employees to the residents of Japan working in Indian embassy in Japan.
[Yes, because Indian embassy in Japan is a part of domestic territory of India.]
(ii) Profits earned by a branch of foreign bank in India.
[Yes, because the branch of foreign bank is within the domestic territory of India.]
(iii) Rent received by an Indian resident from Russian embassy in India.
[No, because Russian embassy in India is not a part of domestic territory of India.]
(iv) Profit earned by a branch of State Bank of India in England.
[No, because the branch of State Bank of India in England is not a part of domestic territory of India.]
(v) Financial help given to flood victims.
[No, because financial help is a transfer payment.]
9. Will the following factor incomes be a part of domestic factor income of India? Give reasons for your answer.
(i) Profit earned by foreign banks from their branches in India.
[Yes, because the branch of foreign bank is within the domestic territory of India.]

- (ii) Salary received by Indian residents, working in American embassy in India.
[No, because American embassy in India is not a part of domestic territory of India.]
 - (iii) Profit earned by an Indian company from its branch in Singapore.
[No, because the branch of Indian company is not within the domestic territory of India.]
 - (iv) Compensation of employees given to residents of China working in Indian embassy in China.
[Yes, because Indian embassy in China is a part of domestic territory of India.]
10. Giving reasons, explain how the following are treated in estimating national income:
- (i) Wheat grown by a farmer but used for family's consumption.
[Yes, because wheat used for self-consumption is a part of total value added in terms of the production of wheat.]
 - (ii) Earnings of the shareholders from the sale of shares.
[No, because there is no net value addition in the economy. Only transfer of ownership (of shares) is occurring.]
 - (iii) Expenditure by government on providing free education.
[Yes, because expenditure on these services is a part of government final consumption expenditure.]
11. Giving reasons, explain how the following are treated in estimating national income:
- (i) Purchase of a truck to carry goods by a production unit.
[Yes. It is a part of investment expenditure.]
 - (ii) Payment of income tax by a producing unit.
[No. Because, all taxes are transfer payments.]
 - (iii) Services rendered by family members to each other.
[No. Services for self-consumption (or services rendered within the family) are not included in the estimation of national income as their market valuation is not possible.]

DOs and DON'Ts

1. It must be noted that value added in the government sector is equal to compensation of employees only. It is because the data regarding rent and interest are not available for this sector and profit just does not exist because all that is produced is meant for collective consumption, not for sale in the market.
2. Remember that even when houses are self-occupied, these are to be treated as income generating assets. In case of self-occupied houses, rental income is assessed on the basis of rent prevailing in the market. It is called imputed rent on owner-occupied houses. This is to be treated as a part of factor income generated during the year.
3. Don't ever forget to estimate market value of output of the subsistence farmers, even when this is not taken to the market for sale. This value is to be included in the estimation of GDP, even when it does not involve any transaction through the market.
However, at the same time, vegetables (and other stuff) available to us through kitchen gardening is not a component of gross output in the economy. Because, it is simply related to leisure-time activity. It is unlike production activity of the producing units in the economy.
4. An individual pays income tax out of his factor income, of course. But 'tax' as such is NOT a factor income. It is a transfer payment to the government. Accordingly, never say 'Yes' to this question: Do we include income tax in the estimation of national income?
The answer is 'No'.
Corporate tax is also to be treated similarly.



- *Meaning and Evolution of Money*
- *Forms of Money*
- *Supply of Money—
Concept of Money Supply and Measurement of Money Supply*

I. MEANING AND EVOLUTION OF MONEY

A thing which is commonly accepted as a medium of exchange is called money. **Example:** A rupee in India is money, as it is a commonly accepted medium of exchange here. Likewise, a dollar in USA is money, as it is a commonly accepted medium of exchange there.

In olden days, **goods were exchanged for goods**. There was no money. Thus, a cobbler would make shoes in return for wheat from the farmer; a farm worker would get grains as a reward for his labour, and so on. This system of exchange was known as **barter system**. But with the multiplicity of wants (and greater need for exchange), barter system (a system where goods were exchanged for goods) proved to be an inefficient system of exchange. It is then that we invented **money**—a common medium of exchange. Now goods were not sold for goods. Instead, goods were sold for money.

Initially, **coins** of gold and silver were introduced as money. Subsequently, **alloy metal** was used for coinage, along with **paper money**. And, now is the age of **plastic money** (in the form of cash cards), or e-money in the form of 'electronic transfer of money' by way of credit/debit entries in the bank accounts. Thus, the origin (and evolution) of money is related to the need to facilitate exchange.

Origin of Money

Origin (and evolution) of money is related to the need to facilitate exchange. Therefore, money is generally defined as a thing that is commonly accepted as a medium of exchange.

Though initially invented as a **medium of exchange**, gradually money found its other uses as well:

- Money is used as a **store of value**. Or, money is used as an instrument of saving.
- Money is used as a **measure of value**. Value of goods and services is expressed in terms of money.
- Money is used as a **standard for deferred payments** (deferred payments are those payments which are made sometimes in the future).

Owing to its multiple functions, money has acquired a wider definition than merely a medium of exchange. It is defined as an instrument that serves as a medium of exchange, store of value, measure of value and standard for deferred payments. Briefly, it is said that '**money is what money does**'.

Definition of Money

Money is what money does. It is defined as an instrument that serves as a medium of exchange, store of value, a measure of value and a standard for deferred payments.

Basic Functions of Money

The definition of money conveys the basic functions of money. These are: (i) Money acts as a medium of exchange, (ii) Money serves as a store of value (people save in terms of money), (iii) Money is a measure of value: market price of goods and services is expressed in terms of money, and (iv) Money serves as a standard for deferred payments (future payments): when business contracts are signed on the basis of future payments, money acts as an instrument for those payments.

Barter System of Exchange

Barter system of exchange is a system in which goods are exchanged for goods. If (as a farmer) you have surplus production of rice, you are to look for a person who needs rice, and at the same time has (say) cloth, which you need for yourself. It means '**double coincidence of wants**': your want for cloth must coincide with somebody's want for rice, and you must have surplus of rice and somebody must have the surplus of cloth. How difficult it is! **What do you do these days?** As a farmer, you sell rice for money, and as a cloth merchant, you sell your cloth for money. With money in hand, you buy whatever you wish to buy. Thus, rice is exchanged for money, cloth is exchanged for money. Money acts as a common medium of exchange. No such common medium of exchange exists in the **C-C economy** (commodity for commodity exchange economy) where goods are exchanged for goods.

C-C Economy

C stands for commodity. C-C economy is the one in which commodities are exchanged for commodities or in which goods are exchanged for goods. C-C exchange refers to Barter System of Exchange. Hence, C-C economy is an economy dominated by Barter System of Exchange.

Drawbacks of the Barter System and their Elimination

Following are the principal drawbacks of barter system of exchange. It is with the introduction of money that these drawbacks have been eliminated.

- (1) Double Coincidence of Wants:** Double coincidence of wants is a core characteristic of the barter system of exchange. **Double coincidence of wants implies that (at a point of time), the two individuals are in possession of such goods which they are willing to exchange for the satisfaction of their wants.** But it is not always so simple. It is not so simple to find a person who wants your horse and at the same time has a cow that you want to buy. Accordingly, under the barter system, exchange remained extremely limited. With the emergence of money (as a medium of exchange), the problem of double coincidence of wants has vanished. Money as a medium of exchange has separated the acts of sale and purchase.
- (2) Lack of a Common Unit of Value:** What is the value of your car? You can reply: ₹ 5 lakh. Can you give the same answer in a barter system of exchange? Certainly not. Under such a system, your car would be valued in terms of horses, cows or buffaloes, simply because there is no money (or a common unit of value). **Evolution of money has given us a common unit of value and therefore, a system of accounting.**
- (3) Difficulty of Future Payments or Contractual Payments:** These days you hire a worker and strike a contract to pay him (say) ₹ 10,000 p.m. **What do you do in a barter system?** Would you decide to pay him in terms of tables or chairs, in terms of rice or wheat, in terms of drugs or chocolates? Contractual payments or future payments would certainly be very difficult under barter system of exchange. **Evolution of money has facilitated contractual payments.**
- (4) Difficulty of Storage of Value (Saving) and Transfer of Value:** In the C-C economy, saving is possible only by way of storage of goods. It involves substantial storage cost as well as the fear of capital loss (owing to natural disasters). Further, **what happens if you are to transfer your saving from one place to the other?**

Did You Know it?

- Money has led to the expansion of exchange.
- Expansion of exchange has led to expansion of the markets for goods and services.
- Expansion of market has led to expansion of the scale of output.
- Expansion of the scale of output has led to GDP growth. Implying growth of the economy.

Obviously, you are to transfer the goods. Which again is a difficult task, besides being expensive. Evolution of money has made storage and transfer of value much easier.

HOTS

Q. Introduction of money has separated the acts of 'sale' and 'purchase'. How?

Ans. Under the barter system of exchange, acts of sale and purchase of an individual must occur at the same point of time. To buy a thing, an individual must at the same time sell something needed by the other person. Also, sale and purchase by an individual must be of equal value.

With the introduction of money (as a medium of exchange), an individual can buy a thing with money without selling anything at the same time. Likewise, he can sell a thing for money without buying anything at the same time. Thus, with the introduction of money, acts of sale and purchase have been separated.

2. FORMS OF MONEY

Some important forms of money are described as under:

- (i) Fiat money and fiduciary money, and
- (ii) Full bodied money and credit money.

(i) Fiat Money and Fiduciary Money

Fiat money refers to that money which is issued by order/authority of the government. It includes all notes and coins which the people in a country are legally bound to accept as a medium of exchange.

Fiduciary money is that money which is accepted as a medium of exchange because of the trust between the payer and the payee.

Example: Cheques are fiduciary money as these are accepted as a means of payment on the basis of trust, not on the basis of any order of the government.

(ii) Full Bodied Money and Credit Money

Full bodied money refers to money in terms of coins whose commodity value is equal to the money value as and when these are issued.

Example: A rupee coin during the British period in India was made of silver. Commodity value of the coin was equal to its money value at the time of its issuing. Or, the market value of the silver contained in the coin was equal to ₹ 1.

Credit money refers to that money of which money value is more than commodity value. **Example:** What is the market value of the metal that the rupee coin is made of in India? Obviously, much lower than the money value of the rupee coin. Otherwise, people would have melted the coins and sold the metal in the market at a price greater than one rupee.

Full Bodied Money:

Money Value = Commodity Value

Credit Money:

Money Value > Commodity Value

HOTS

Q. 1. Distinguish between money value of money and commodity value of money.

Ans. Money value of money refers to the value which is inscribed on a coin or written on a paper note. Thus, money value of a paper note is what is written on it: one hundred rupees, two hundred rupees, etc. With a two hundred rupee note, you can buy goods and services worth two hundred rupees in the market.

Commodity value of money refers to value of the commodity (like metal) that the money is made of. Thus, if coins are made of gold or silver (as was the practice in old days), commodity value of money refers to the market value of the gold or silver contained in the coin.

Q. 2. Can you think of a situation when money plays no role whatsoever?

Ans. Money plays no role in a situation when there is no exchange. **Example:** An individual or a family surviving on an island without any exchange (or sale and purchase of goods and services).

Q. 3. Why people hold notes and coins when it is clear that the intrinsic value (commodity value) of notes and coins is almost negligible?

Ans. Because notes and coins are legal tenders. These are fiat money or the money backed with authority of the government. It is unlawful not to accept notes and coins for receipts/payments.

3. SUPPLY OF MONEY

Supply of money is a stock concept. It refers to total stock of money (of all types) held by the people of a country at a point of time.

It is important to note that the supply of money does not include: (i) stock of money held by the government, and (ii) stock of money held by the banking system of a country. Because, government and the banking system of a country are suppliers of money, and the stock of money held by the suppliers of money is never treated as a part of the supply of money in the country.

Supply of money includes only that stock of money which is held by people, other than suppliers of money themselves. In other words, supply of money refers to that stock of money which is held by those, who demand money, not by those, who supply money.



HOTS

Q. Who are the producers of money?

Ans. Producers of money refer to suppliers of money. They include:

(i) the government of the country, and

(ii) the banking system of a country, including both the central bank (which is the note issuing authority) and the commercial banks (who add to the supply of money through demand deposits).

Measures of Money Supply

In India, there are four alternative measures of money supply, popularly known as M_1 , M_2 , M_3 , and M_4 . Of these, only M_1 measure is discussed here, as prescribed in the syllabus. M_2 , M_3 and M_4 measures are given in 'Ability Zone' of the chapter for general reference.

M_1 Measure of Money Supply

According to M_1 measurement, money supply includes the following components:

$$M_1 = C + DD + OD$$

Here,

- C:** It refers to currency held by the public. It includes coins as well as paper notes.
- DD:** It refers to demand deposits of the people with the commercial banks. These are chequeable deposits which can be withdrawn or transferred on demand.
- OD:** These are other deposits which include:
 - (i) Demand deposits with RBI of public financial institutions like NABARD (National Bank for Agriculture and Rural Development).
 - (ii) Demand deposits with RBI of foreign central banks and of the foreign governments.
 - (iii) Demand deposits of international financial institutions like IMF and World Bank.

Specifically, OD does not include:

- (i) deposits of the government of the country with RBI,
- (ii) deposits of the country's banking system with RBI.

Net Demand Deposits and Gross Demand Deposits

Distinction may be drawn between **gross demand deposits** and **net demand deposits** with the commercial banks. Gross demand deposits include inter-banking claims: claims of one bank against the other. Net demand deposits do not include inter-banking claims. Inter-banking claims are not a part of demand deposits of the people.

Note of Caution

Only net demand deposits are taken as a part of money supply.

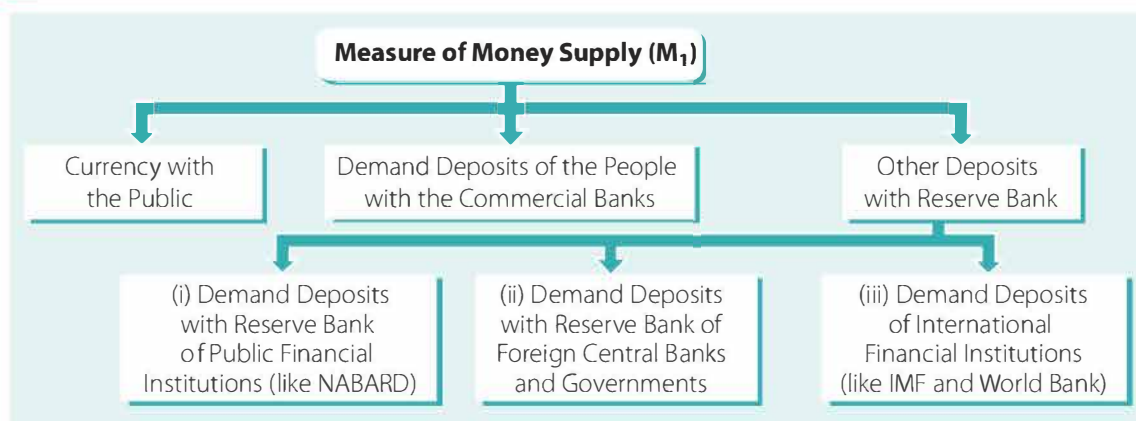
Term Deposits and Demand Deposits

Term deposits are different from demand deposits:

- (i) Term deposits are always for a specific period of time, like fixed deposits for a period of one year or two years. Demand deposits are not for any specific period of time.
- (ii) Depositors cannot withdraw money (in fixed deposits) as and when needed. Money in demand deposits can be withdrawn as and when needed.
- (iii) Term deposits are not chequeable deposits. Depositors cannot sign a cheque against these deposits. Demand deposits are chequeable deposits. These are: (a) saving account deposits, and (b) current account deposits. Depositors can sign a cheque and withdraw/transfer money from these accounts.

Note of Caution

In the context of M_1 measurement of money supply, only demand deposits are considered as a part of money supply, NOT the term deposits [Demand Deposits = Saving Account Deposits + Current Account Deposits].



[Note: The standard practice is to consider (i) Currency with the public, and (ii) Demand deposits of the people with the commercial banks as the two principal components of money supply in the economy.]

Who Supplies Money?

Suppliers of money include: (i) **central bank of the country** (RBI in India), (ii) **commercial banks**, and (iii) **the government**.

In India, RBI is the principal supplier of money. RBI issues currency on the basis of Minimum Reserve System. Under this system, Reserve Bank maintains a **minimum reserve of ₹ 200 crore in the form of gold and foreign securities**. Of this reserve, value of the gold must be ₹ 115 crore.

Commercial banks are the second significant source of money supply. Unlike the central bank, commercial banks do not have the authority of issuing currency. The commercial banks cannot issue notes and coins. Yet, they are the suppliers of money as they create money by way of demand deposits. These deposits serve as supply of money because these are chequeable deposits. People can withdraw or transfer money by writing cheques. **Money created by the commercial banks by way of demand deposits is called Bank Money.**

Government is the third source of money supply in the country. In India, the Ministry of Finance issues one rupee notes and coins of all denomination.

Bank Money and High Powered Money

Bank money refers to demand deposits (or chequeable deposits) of the people with the commercial banks.

High powered money is the sum total of: (a) currency held by the people, (b) vault cash of the commercial banks, and (c) cash reserves of the commercial banks with the RBI. This is called 'Monetary Base' or 'Base Money' in the economy.

Note: While currency held by the people is a part of money supply, vault cash of the commercial banks as well as cash reserves of the commercial banks with RBI are NOT a part of money supply. As already noted, stock of money held by the suppliers of money is never treated as a part of money supply.

HOTS

Q. 1. State the principal components of money supply.

Ans. The principal components of money supply are:

- (i) Currency (notes + coins) held by the public.
- (ii) Demand deposits of the people with the commercial banks, and
- (iii) Other deposits (demand deposits with RBI of domestic and foreign institutions other than of the government of the country and commercial banks within the country).

Q. 2. Why are cash deposits of the government and of the commercial banks with the RBI not treated as a part of money supply?

Ans. Because government and commercial banks are creators/suppliers of money. And, money held by the creators/suppliers of money is never treated as a part of money supply.

Power Points & Revision Window

Money is anything which is commonly accepted as a medium of exchange. It has been invented to overcome the difficulties of barter system of exchange.

Barter System of Exchange is the system in which commodities are exchanged for commodities. This is also called commodity for commodity exchange economy or 'C-C economy'.

- **Drawbacks**
 - (i) It requires double coincidence of wants which is hard to find.
 - (ii) It lacks a common unit of exchange.
 - (iii) It lacks the system of future payments or deferred payments.
 - (iv) It lacks the system of storage and transfer of value.

Forms of Money

- **Fiat Money** is that money which is issued by order (authority) of the government.
- **Fiduciary Money** is that money which is accepted as a medium of exchange because of the trust between the payer and the payee.
- **Full Bodied Money:** Money value = Commodity value of money.
- **Credit Money:** Money value of coins and notes > Commodity value of coins and notes.

Supply of Money is a stock concept. It refers to stock of money available with the public/people at a point of time.

- **Stock of Money** with the government and the banking system of the country is not considered as a part of money supply.
- **Components of Money Supply:** Currency with Public + Demand Deposits with Commercial Banks + Other Deposits with the Reserve Bank.



EXERCISE

1. Objective Type Questions (Remembering & Understanding based Questions)

A. Multiple Choice Questions

Choose the correct option:

1. Barter system refers to that system wherein:
 - (a) goods are exchanged for goods
 - (b) goods are not exchanged at all
 - (c) goods are exchanged for domestic currency
 - (d) goods are exchanged for foreign currency
2. Which of the following is a typical characteristic of the barter system?
 - (a) A common medium of exchange
 - (b) Double coincidence of wants
 - (c) A common unit of account
 - (d) A standard for deferred payments
3. Which of the following is a commonly accepted definition of money?
 - (a) Any good which is commonly used as a store of value
 - (b) Any good which is exchanged for gold at a fixed rate
 - (c) Any good which is acceptable to a bank
 - (d) Any good which is commonly accepted as a medium of exchange
4. Money which is accepted as a medium of exchange because of the trust between the payer and the payee is called:
 - (a) full bodied money
 - (b) credit money
 - (c) fiat money
 - (d) fiduciary money
5. Full bodied money is that money whose money value and commodity value are:
 - (a) equal in the market
 - (b) declared as equal by the government
 - (c) different in the market
 - (d) declared as equal by the RBI
6. Money that is issued by the authority of the government is called:
 - (a) full bodied money
 - (b) credit money
 - (c) fiat money
 - (d) fiduciary money
7. When money value of money exceeds commodity value of money, it is called:
 - (a) full bodied money
 - (b) credit money
 - (c) fiat money
 - (d) fiduciary money
8. Money as a standard for deferred payments has led to the emergence of:
 - (a) commodity market
 - (b) financial market
 - (c) both (a) and (b)
 - (d) none of these
9. Which of the following is the component of M_1 measure of money supply?
 - (a) Term deposit
 - (b) Demand deposits
 - (c) Cash reserves of the commercial banks
 - (d) None of these
10. Bank money is that money which is:
 - (a) printed by RBI
 - (b) printed by the government
 - (c) generated in the form of credit creation
 - (d) none of these

11. Who supplies money in India?
 - (a) The RBI
 - (b) The commercial banks
 - (c) The government
 - (d) All of these
12. Demand deposits include:
 - (a) chequeable deposits
 - (b) deposits which can be withdrawn on demand
 - (c) fixed deposits for a period of time
 - (d) both (a) and (b)
13. In India, there are four alternative measures of money supply: M_1 , M_2 , M_3 and M_4 , of these M_1 =
 - (a) Currency with people
 - (b) Currency with people + Demand deposits
 - (c) Currency with people + Demand deposits + Other deposits with the Reserve Bank
 - (d) None of these
14. Supply of money is a:
 - (a) flow variable
 - (b) stock variable
 - (c) real flow
 - (d) none of these
15. In India, coins are issued by:
 - (a) State Bank of India
 - (b) Reserve Bank of India
 - (c) Ministry of Finance
 - (d) Ministry of Urban Development
16. Introduction of money has:
 - (a) separated the acts of sale and purchase of an individual
 - (b) combined the acts of sale and purchase of an individual
 - (c) expanded the scope of sale and purchase
 - (d) both (a) and (c)
17. Which of the following systems is followed by Reserve Bank of India for issuing currency?
 - (a) Proportionate system
 - (b) Simple deposit system
 - (c) Minimum reserve system
 - (d) Fixed fiduciary issue system
18. High powered money is equal to:
 - (a) money supplied by the RBI only
 - (b) total supply of money in the economy
 - (c) notes and coins held by the people
 - (d) money (notes and coins) held by the people, vault cash of the commercial banks as well as cash reserves of the commercial banks with the RBI

Answers

1. (a) 2. (b) 3. (d) 4. (d) 5. (a) 6. (c) 7. (b) 8. (b) 9. (b) 10. (c)
 11. (d) 12. (d) 13. (c) 14. (b) 15. (c) 16. (d) 17. (c) 18. (d)

B. Fill in the Blanks

Choose appropriate word and fill in the blank:

1. A thing which is commonly accepted as a medium of exchange is called _____
 (commodity/money)
2. A system where goods are exchanged for goods is known as _____
 (barter system of exchange/monetary system of exchange)

3. Evolution of money has facilitated _____ . (current payments/contractual payments)
4. Main characteristic of money is _____ . (liquidity/solidness)
5. _____ value of a paper note is what is written on it. (Money/Commodity)
6. _____ money is accepted as a medium of exchange because of the trust between the payer and the payee. (Fiat/Fiduciary)
7. Under the barter system of exchange, acts of sale and purchase of an individual occur at the _____ point (s) of time. (same/different)
8. _____ refers to total stock of money held by the people of a country at a point of time. (Supply of money/Demand for money)

Answers

- | | | | |
|----------|------------------------------|-------------------------|--------------------|
| 1. money | 2. barter system of exchange | 3. contractual payments | 4. liquidity |
| 5. Money | 6. Fiduciary | 7. same | 8. Supply of money |

C. True or False

State whether the following statements are True or False:

1. C-C economy is an economy dominated by barter system of exchange. (True/False)
2. In barter system, deferred payments are made in the form of goods. (True/False)
3. In case of credit money, money value is less than commodity value . (True/False)
4. Expansion of exchange has led to expansion of the markets for goods and services. (True/False)
5. Fiat money includes all notes and cheques which the people in a country are legally bound to accept as a medium of exchange. (True/False)
6. Supply of money includes stock of money held by the government. (True/False)
7. Commercial banks add to the supply of money through demand deposits. (True/False)
8. Only net demand deposits are taken as a part of money supply. (True/False)

Answers

1. True 2. True 3. False 4. True 5. False 6. False 7. True 8. True

D. Matching the Correct Statements

I. From the set of statements given in Column I and Column II, choose the correct pair of statements:

Column I	Column II
(a) Full bodied money	(i) Money value > Commodity value of money
(b) Term deposits	(ii) Chequeable deposits
(c) Barter system of exchange	(iii) Goods are exchanged for money
(d) Gross demand deposits	(iv) Does not include inter-banking claims
(e) High powered money	(v) Base money in the economy

Answer

- (e) High powered money—(v) Base money in the economy

II. Identify the correct sequence of alternatives given in Column II by matching them with respective items in Column I:

Column I	Column II
(a) Government of a country	(i) Legal tenders
(b) Supply of money	(ii) Cheques
(c) RBI	(iii) Supplier of money
(d) Fiduciary money	(iv) Principal supplier of money
(e) Notes and coins	(v) A stock concept

Answers

(a)—(iii), (b)—(v), (c)—(iv), (d)—(ii), (e)—(i)

E. 'Very Short Answer' Objective Type Questions

1. What is barter system of exchange?

Ans. Barter system of exchange is a system in which goods are exchanged for goods. Money as a medium of exchange does not exist.

2. Define C-C economy.

Ans. C-C economy refers to that economy in which commodities are exchanged for commodities or in which goods are exchanged for goods.

3. What do you mean by double coincidence of wants?

Ans. Double coincidence of wants means that goods in possession of two different individuals are needed by each other at the same time.

4. What is meant by money?

Ans. Money can be defined as something that is generally accepted as a medium of exchange and acts as a measure and a store of value.

5. What is fiat money?

Ans. Fiat money refers to money backed with order (authority) of the government.

6. What is fiduciary money?

Ans. Fiduciary money is the money backed with mutual trust between the payer and the payee.

7. Define full bodied money.

Ans. Full bodied money refers to money in terms of coins whose commodity value is equal to the money value as and when these are issued.

8. What is credit money?

Ans. Credit money is the money of which money value (face value) is more than commodity value (intrinsic value).

9. What is bank money?

Ans. Bank money is the money created by the commercial banks in the form of demand deposits, over and above cash deposits of the people with the banks.

10. Define high powered money.

Ans. High powered money refers to monetary base or base money in the country. It includes: (i) currency held by the people, (ii) vault cash of the commercial banks, and (iii) cash reserves of the commercial banks with the RBI.

11. Define money supply.

Ans. Money supply refers to the total quantity or stock of money available in the economy at a point of time.

12. Write the components of money supply.

Ans. (i) Currency with the people,
(ii) Demand deposits with commercial banks, and
(iii) Other deposits.

13. Who are the suppliers of money in India?

Ans. (i) The government of the country,
(ii) The central bank of the country, and
(iii) The commercial banks.

14. Define demand deposits.

Ans. Demand deposits of commercial banks are those deposits which can be withdrawn from the bank on demand or by writing a cheque any time.

15. Define term deposits.

Ans. Term deposits are those deposits which cannot be withdrawn from the bank as and when needed or by writing a cheque any time. These deposits involve a lock-in period.

2. Reason-based Questions (Comprehension of the Subject-matter)

Read the following statements carefully. Write True or False with a reason.

1. Double coincidence of wants is an essential requirement of exchange.

Ans. False. Though it is an essential requirement for the barter economy, in a money economy, exchange can take place without double coincidence of wants.

2. Face value of money is always greater than its intrinsic value.

Ans. False. In case coins are made of gold and silver, intrinsic value of money may over time exceed its face value.

3. Stock of money with the money issuing authorities is an important component of money supply.

Ans. False. Supply of money does not include the stock of it with the money issuing authorities.

4. Fiat money is the same as fiduciary money.

Ans. False. Fiat money is the money backed with order of the government whereas fiduciary money is the money backed with the mutual trust between the payer and the payee.

5. Money supply includes demand deposits of the people with the commercial banks.

Ans. True. Demand deposits of the people with the commercial banks is a component of money supply. Because, these deposits are converted in cash just by writing a cheque.

6. Double coincidence of wants is a typical feature of monetary system of exchange.

Ans. False. Double coincidence of wants is a typical feature of barter system of exchange.

7. Money has separated the acts of sale and purchase.

Ans. True. With the introduction of money, an individual can buy or sell a thing without selling or buying anything in return.

8. There is no medium of exchange in the barter system.

Ans. False. Under barter system, goods themselves are the medium of exchange for goods. Of course, there is no common medium of exchange like money.

9. There is no common unit of value in barter system.

Ans. True. There is a lack of common unit of exchange in barter system. Evolution of money offered a common unit of value.

10. Money may be used as a commodity.

Ans. True. It happens when intrinsic value (commodity value) of money exceeds its face value (money value).

11. Credit money is the money received as a credit from the banks.

Ans. False. Credit money is money whose money value is more than its commodity value.

12. Monetary system of exchange facilitates much greater exchange than the barter system.

Ans. True. Because monetary system (unlike barter system) does not require double coincidence of wants.

13. M_1 measure of money supply includes only notes and coins held by the people.

Ans. False.

$$M_1 = \text{Notes and coins held by the people} + \text{Demand Deposits} + \text{Other Deposits.}$$

14. Money supply in the economy refers to only the fiat money issued by the RBI.

Ans. False. Money supply in the economy includes both fiat money (backed by authority of the RBI) as well as fiduciary money (backed by mutual trust between the payer and the payee).

15. Commercial banks play no role in the stock of money supply in the economy.

Ans. False. Commercial banks contribute to the stock of money supply in the economy by way of credit creation.

16. Cash reserves with the banks are an important component of money supply.

Ans. False. Cash reserves with the banks are not a component of money supply. Because cash reserves of the suppliers of money is not treated as a part of money supply.

3. HOTS & Applications

1. What is meant by an ideal supply of money?

Ans. Ideal money supply is that amount of money supply which keeps the total purchasing power in a state of balance with the supply of goods and services in the economy, so that the economy does not slip into inflationary or deflationary situations.

2. Commodity value of money has never been greater than the face value (or money value). Is it true?

Ans. No, the given statement is false. In good old days when coins were made of gold and silver, commodity value of money (referring to the value of metal contained in the coins) would sometimes exceed the face value of coins which is why coins were sometimes melted and sold as a metal.

3. Is it true that high powered money refers to cash reserves of the commercial banks with the central bank?

Ans. No, it is incorrect. High powered money refers to (i) currency with public, (ii) vault cash of the commercial banks, and (iii) cash reserves of the commercial banks with the RBI.

4. Money becomes a commodity when intrinsic value of money exceeds its face value. Defend or refute.

Ans. Yes, the above statement is correct. Because when intrinsic value exceeds face value of money (as it often happened in case of gold and silver coins), money is used as a commodity (implying metal content of money is sold as a commodity).

5. A curb on high powered money will lead to a curb on the creation of credit by the commercial banks in the economy. Do you agree?

Ans. Yes, the given statement is correct. This is because high powered money includes currency with the public as well as cash reserves of the commercial banks with the RBI. It serves as a monetary base for the creation of credit in the economy. A curb on high powered money will definitely lead to a curb on the creation of credit by the commercial banks.

4. Analysis & Evaluation

1. Explain how introduction of money has led to the expansion of markets.

Ans. Following observations may be noted in this regard:

- (i) Introduction of money has led to the expansion of markets through the expansion of exchange. Because, barter system of exchange requires 'double coincidence of wants' while the monetary system does not.
- (ii) Money has led to the emergence of financial market and financial intermediaries (banks and other financial institutions). Availability of funds, both for purpose of consumption and investment, has substantially increased. Consequently, markets have expanded.
- (iii) Introduction of money has boosted the mobility of capital across different parts of the world. This has led to the expansion of global markets through FDI (foreign direct investment).

2. Do you agree with the view that the excess of money supply hinders the process of economic growth? Give reasons.

Ans. Yes, it is correct to say that the excess of money supply hinders the process of economic growth. The following reasons explain this point of view:

- (i) Excess of money supply is a situation when purchasing power (also called liquidity) with the people is more than the existing market value of the goods and services available in the economy. Consequently, pressure of demand mounts up on the available supply of goods and services. This leads to a rise in the general price level.
- (ii) If excess supply of money continues to persist, the situation of rising price level also continues to persist. This is called a situation of inflation—a situation of 'price spiral'.
- (iii) Persistent inflation leads to a rise in the rate of interest. Implying that the cost of investment tends to rise.
- (iv) High cost of investment leads to a cut in the volume of investment.
- (v) When investment declines, the GDP growth also declines.

Thus, excess supply of money tends to hinder the process of economic growth. It lowers the growth rate of real GDP.

5. CBSE Questions—Past 5 years (With Answers or Reference to the Text for Answers)

1. State the meaning and components of money supply.

[CBSE Delhi 2017]

[Page 137, 138]

2. Demand deposits include (choose the correct alternative):

- (a) saving account deposits and fixed deposits
- (b) saving account deposits and current account deposits
- (c) current account deposits and fixed deposits
- (d) all types of deposits

[CBSE (AI) 2017]

[(b)]

3. Explain "difficulty in storing wealth" problem faced in the barter system of exchange.

[Page 135, 136]

[CBSE (AI) 2017]

4. Define money. List its components.

[CBSE (F) 2017]

[Page 134]

Components of money are: (i) notes, (ii) coins, (iii) bank's cheques and drafts, (iv) e-money.]

5. State the two components of M_1 measure of money supply. [CBSE 2018]
 Or
 State any two components of M_1 measure of money supply. [CBSE 2019 (58/1/1)]
 [Page 138]
6. Define “demand deposits”. [CBSE 2019 (58/4/1)]
 [Page 139]

6. NCERT Questions (With Hints to Answers)

1. What is a barter system? What are its drawbacks?
 [Hint: Barter system is a system where goods are exchanged for goods.
 Drawbacks:
 (i) It requires double coincidence of wants.
 (ii) It lacks common unit of exchange.
 (iii) It lacks convenient means of storage of value.]
2. How does money overcome the shortcomings of a barter system?
 [Hint: Use of money overcomes the drawbacks of barter system of exchange in the following manner:
 (i) Use of money as a medium of exchange has overcome the difficulty of double coincidence of wants. Accordingly, exchange has tended to expand.
 (ii) Money facilitates storage of value just in terms of paper claims, avoiding the storage of goods under barter system.
 (iii) Money acts as a standard unit of value which is absent.
 (iv) Money acts as an instrument of deferred payments. No such instrument is available in the barter system of exchange.]
3. What are the alternative definitions of money supply in India?
 [Hint: M_2 , M_3 , and M_4 (see Ability Zone for details).]
4. What is ‘fiat money’?
 [Hint: Fiat money refers to money backed with order (authority) of the government.]
5. What is high powered money?
 [Hint: High powered money means cash (coins and notes) with the people and cash reserves of the commercial banks.]

7. Miscellaneous Questions and Reference to the Text for Answers

A. Questions of 3 & 4 marks each

1. Explain the evolution of money. [Page 133, 134]
2. Define barter system of exchange. State any two shortcomings of barter system of exchange. [Page 134–136]
3. Explain any one problem faced in the barter system. How has money solved this problem? [Page 135, 136]
4. Give meaning of money. State its different forms. [Page 134, 136, 137]
5. Explain the important forms of money. [Page 136, 137]
6. What is meant by money supply? State M_1 measure of money supply. [Page 137, 138]

B. Questions of 6 marks each

1. State the limitations (drawbacks) of barter system of exchange. How are these limitations removed with the introduction of money? [Page 135, 136]
2. "Money is what money does." Explain. [Page 133, 134]
3. Define money supply. State and explain the different components of money supply. [Page 137, 138]
4. How does RBI classify the supply of money? [Page 137, 138]

DOs and DON'Ts

1. You must understand that barter system of exchange is a characteristic of backward economies or primitive economies. Monetary system of exchange is a characteristic of modern economies. Growth of an economy (from an underdeveloped economy to a developed economy) is deeply related to the growth of monetary system of exchange.
2. Storage of money should not be misunderstood as 'idle cash' with the people. People hold money (i) to meet their routine transactions, (ii) to cope with their emergent needs in the near future, and (iii) for purpose of investment (buying shares and bonds).
3. In India, RBI issues all paper notes, but not the one rupee note. Also, it does not issue coins. All coins and one rupee notes are issued by Ministry of Finance, Government of India, under the Indian Coinage Act. However, circulation of the entire currency (including notes and coins) is conducted only by the RBI.



• M_2, M_3, M_4 Measures of Money Supply

M_2 Measurement

M_2 is a broader concept of money supply compared to M_1 . Besides all the components of M_1 , it also includes savings of the people with the post offices. Thus,

$$M_2 = M_1 + \text{Deposits with Post Office Saving Bank Account}$$

M_3 Measurement

M_3 is also a broader concept of money supply compared to M_1 . Besides all the components of M_1 , it also includes (net) time deposits (or fixed deposits/term deposits) of the people with the commercial banks. Thus,

$$M_3 = M_1 + \text{Net Time Deposits with the Commercial Banks}$$

M_4 Measurement

M_4 concept of money supply is still broader—it is broader than even M_3 . Besides all the components of M_3 , it also includes total deposits with the post offices (other than in the form of National Saving Certificate).

Thus,

$$M_4 = M_3 + \text{Total Deposits with Post Offices}$$

(other than in the form of National Saving Certificate)

Aggregate Monetary Resources of the Country

If money supply in the country is measured using M_3 measure, it is called 'aggregate monetary resources' of the country.

- **'Narrow Money' and 'Broad Money' Concepts of Money Supply**

The distinction between narrow money and broad money is sometimes drawn with reference to the measure used for estimating total money supply in the country. If M_1 or M_2 measures are used, then it is known as 'narrow money' concept of money supply. If M_3 or M_4 measures are used, then it is known as 'broad money' concept of money supply.

- **Indian Monetary System**

A monetary system refers to the form of money which circulates in the economy by way of order/authority of the government. India is using paper currency. Accordingly, Indian monetary system is described as a Paper **Currency Standard**. Paper currency does not exclude the use of metal coins. Both metal coins and paper notes are credit money in India. The only difference is that while coins are of small denomination, paper notes are of large denomination.

Note Carefully

–Coins in India are limited legal tender.

–Paper notes in India are unlimited legal tender.

It means that coins can be used to settle payments only of limited value; paper notes can be used to settle payments of unlimited value.

- **What Governs Note Issuing in India?**

Note issuing in India is governed by **Minimum Reserve System**. The entire currency issued has the backing of minimum gold reserves. Two points must be carefully understood in this context:

(i) Gold reserves are just the **minimum reserves (₹ 115 crore)**. These are not proportionate to the currency in circulation.

(ii) Money with the people is entirely 'credit money'. It cannot be converted into bullion—silver or gold by the issuing authority. Gold reserves are just a backing, not the stock to convert paper notes into gold.

- **The Concept of Liquidity**

Liquidity of an asset refers to its convertibility into money/cash. Faster an asset can be converted into cash, more liquid it is. Obviously, money itself is the most liquid asset.

Chequeable deposits/demand deposits are highly liquid assets. Accordingly, we can state that M_1 includes only those components of money supply which are most liquid.

Term deposits or time deposits/fixed deposits are not chequeable deposits. These cannot be withdrawn by issuing a cheque. **These deposits are, therefore, less liquid than the demand deposits.**

Accordingly, M_3 and M_4 measures of money supply include such components of money supply which are less liquid.



- *Money Creation by the Commercial Banks*
- *The Central Bank: Meaning and Functions*
- *Control of Money Supply by the Central Bank (RBI in India)*

I. MONEY CREATION BY THE COMMERCIAL BANKS

In the previous chapter, we noted that the commercial banks are an important source of money supply in the economy. Unlike the central bank, the commercial banks do not have the authority of issuing currency: they cannot issue notes or coins. Yet, they are the suppliers of money as they create money by way of demand deposits. In the present chapter, we discuss the process of money creation by the commercial banks: how exactly the commercial banks create money?

Process of Money Creation by the Commercial Banks

Following observations explain the process of money creation by the commercial banks:

- (i) Banks receive cash deposits from the people. These are called '**primary deposits**'.
- (ii) Banks lend money many times more than their cash reserves.
- (iii) Money is lent by the commercial banks not in the form of cash, but in the form of 'credit entry' in the accounts of the borrowers. These credit entries are known as **secondary deposits**.
- (iv) The borrowers can issue cheques against 'credit' (loans) in their accounts. The cheques circulate in the economy as money.
- (v) **Primary deposits** + **Secondary deposits**
= **Demand deposits** held by the people in the commercial banks

- (vi) Total demand deposits with the banks are many times more than the cash reserves of the commercial banks. This is because the commercial banks know (by way of their historical experience) that all the depositors would not show up in the banks to withdraw all their deposits by way of cash.
- (vii) If experience shows that withdrawals are generally around 10 per cent of demand deposits, the banks need to keep only 10 per cent of deposits as cash reserves.
- (viii) All demand deposits (held by the people) serve as money supply in the economy, just like cash held by the people.
- (ix) Demand deposits serving as money supply is called bank money. This is money created by the banks. Because this is circulating in the system not in the form of cash, but in the form of cheques issued by the banks to the holders of demand deposits.

Illustration

Let us illustrate the process of credit creation with the help of an example. For the sake of simplicity, we assume that:

- (i) There is a 'single banking system' in the economy and initially, the bank receives deposits of ₹ 1,000.
- (ii) CRR = 10% and it does not change. This reflects cash reserves of the commercial banks as a percentage of their demand deposits.

Table 1 shows how the system would work for the creation of money:

Table 1. Creation of Money in a Single Banking System

Rounds	Deposits (₹)	Loans (₹)	Cash Reserves (₹) (CRR = 10%)
1st Round	1,000	900	100
2nd Round	900	810	90
3rd Round	810	729	81
(and so on till all excess reserves are exhausted)			
Total	10,000	9,000	1,000

- In the first round, bank receives deposits of ₹ 1,000.
- The cash reserves to tackle the liability of ₹ 1,000 is equal to ₹ 100 (because cash reserve ratio is = 10% of total deposits). Implying that the banks have excess reserves = ₹ 1,000 - ₹ 100 = ₹ 900 which they can use for the purpose of lending.
- When these excess reserves are loaned out, deposits of the banks are raised by ₹ 900. The banks need to hold cash reserves as 10% of ₹ 900 or ₹ 90. Now, excess reserves of the bank is ₹ 900 - ₹ 90 = ₹ 810 which can be loaned. This process continues till total demand deposits are ₹ 10,000 and cash reserves are ₹ 1,000.

Thus, if cash reserve ratio is equal to 10%, initial deposits of ₹ 1,000 allows the bank to create demand deposits up to ₹ 10,000. So that,

$$\begin{aligned}\text{Demand Deposits} &= \frac{1}{\text{CRR}} \times \text{Cash Reserves} \\ &= \frac{1}{10\%} \times ₹ 1,000 \\ &= 10 \times ₹ 1,000 = ₹ 10,000\end{aligned}$$

Summing up, we can say that money creation by the commercial banks depends on two principal factors, as under:

(i) Cash Balances with Commercial Banks which they can use as cushion money (emergency fund) for the creation of credit.

Higher these cash balances, greater the money creation (or credit creation) capacity of the commercial banks, and

(ii) CRR: Higher the CRR, lower the capacity to create money.

Besides the CRR (cash which the commercial banks ought to keep), the banks may hold excess reserves, as 'vault cash'. Higher the vault cash, lower would be the capacity to create money.

Primary and Secondary Deposits

Primary deposits are cash deposits with the commercial banks by the people. These are a part of total demand deposits of the banks.

Secondary deposits are those deposits which arise on account of loans by the banks to the people. These are also a part of total demand deposits of the banks.

Important to note it is, that while primary deposits indicate savings of the depositors with the banks, secondary deposits indicate borrowings of the depositors from the banks. Secondary deposits are also called **Derivative Deposits**.

Total Demand Deposits of the Commercial Banks

$$= \text{Primary Deposits of the Commercial Banks} + \text{Secondary Deposits of the Commercial Banks.}$$



CRR and Credit Multiplier

In India, CRR is determined not by the commercial banks themselves but by the RBI (Reserve Bank of India). Therefore, it is also called LRR (Legal Reserve Ratio).

Also, the commercial banks are required to keep the stipulated (legally required) cash reserves not with themselves, but with the RBI (of course, the banks can keep excess reserves as 'vault cash' with themselves).

Once CRR is known (as fixed by the RBI), we can find out 'credit multiplier', or the number of times the commercial banks can create credit, per unit of their cash reserves with the RBI.

Credit multiplier is found in terms of the following equation:

$$k = \frac{1}{\text{CRR}}$$

Here, k = Credit multiplier.

CRR = Cash reserve ratio.

Example: If CRR = 10%, then

$$k = \frac{1}{10\%} = \frac{100}{10} = 10$$

It implies that if CRR = 10% then the commercial banks can credit money 10 times of their cash reserves with the central bank. Thus: if cash reserves are = ₹10,000, the commercial banks can create credit, as per the following equation:

$$\begin{aligned} \text{Credit Creation or Money Creation} &= ₹10,000 \times \frac{1}{10\%} \\ &= ₹10,000 \times \frac{100}{10} = ₹1,00,000 \end{aligned}$$

Note that this is the maximum amount of money (credit) that the commercial banks can create given their cash reserves. This is because CRR is legally determined by the RBI, and the commercial banks must comply with it.



Credit Multiplier

$$k = \frac{1}{\text{CRR}}$$

Here, k = Credit multiplier, CRR = Cash reserve ratio.

In India, CRR is fixed by the RBI. Accordingly, credit multiplier indicates the maximum amount of money that the commercial banks can create; given their cash reserves with the RBI.

2. THE CENTRAL BANK

The central bank is an apex bank that controls the entire banking system of a country. It is the sole agency of note issuing and controls the supply of money in the economy. It serves as a banker to the government and manages forex (foreign exchange) reserves of the country. Reserve Bank of India (RBI) is the central bank of India.

Functions of the Central Bank

Principal functions of the central bank are as under:

- (1) **Bank of Issuing Notes:** Central bank of a country has the exclusive right (monopoly right) of issuing notes. This is called **Currency Authority function of the central bank**. The notes issued by the central bank are an unlimited legal tender.


- (2) **Banker to the Government:** Central bank is a banker, agent, and financial advisor to the government.
- As a banker to the government, it manages accounts of the government.
 - As an agent to the government, it buys and sells securities on behalf of the government.
 - As an advisor to the government, it frames policies to regulate the money market.
- (3) **Bankers' Bank and Supervisory Role:** As a Bankers' Bank, it has almost the same relation with other banks in the country as a commercial bank has with its customers. Three observations need to be noted in this context:
- (i) The central bank accepts deposits from the commercial banks, and offers them loan.
 - (ii) The central bank provides 'Clearing House' facility to the commercial banks. It is a cheque clearing facility provided at one centre to all the banks.
 - (iii) In its supervisory role, the central bank ensures that the commercial banks show compliance to its directives, particularly relating to CRR and SLR. The central bank changes CRR, SLR as and when required. It ensures that the commercial banks show compliance to these changes so that the desired targets are achieved.
- (4) **Lender of the Last Resort:** It means that if a commercial bank fails to get financial accommodation from anywhere, it approaches the central bank as a last resort. Central bank advances loan to such a bank against approved securities. By offering loans to the commercial banks in situations of emergency, the central bank ensures: (i) that the banking system of the country does not suffer any set-back, and (ii) that money market remains stable.
- (5) **Custodian of Foreign Exchange:** Central bank is the custodian of nation's foreign exchange reserves. It also exercises 'managed floating' to ensure stability of exchange rate in the international money market. *Managed floating refers to the sale and purchase of foreign exchange with a view to achieving stability of exchange rate for the domestic currency.*
- (6) **Clearing House Function:** Central bank performs the function of a clearing house. Let us take an example to understand this function. Supposing, Bank A receives a cheque of ₹ 10,000 drawn

on Bank B, and Bank B receives a cheque of ₹ 15,000 drawn on Bank A. Both, Banks A and B have their accounts with the central bank. The cheques of both the banks are cleared through their accounts with the central bank. This is how the central bank acts as a clearing house. It avoids transfer of cash between the banks and reduces requirement of cash.

(7) Control of Credit: The principal function of the central bank is to control the supply of credit in the economy. It implies increase or decrease in the supply of money in the economy by regulating the 'creation of credit' by the commercial banks. The central bank needs to control the supply of money to cope with the situations of inflation and deflation. During inflation, the supply of money is reduced and during deflation, it is increased. Section 3 of the chapter gives a detailed description of how the central bank controls supply of money in the economy.

Performing all these functions, the central bank focuses on growth with stability. (Growth refers to a sustained rise in GDP. Stability refers to the elimination of inflationary and deflationary situations in the economy.)

The Central Bank and A Commercial Bank—The Difference

	The Central Bank	A Commercial Bank
	<p>(i) <i>The central bank is the apex bank—the bank of all banks in the country. All commercial banks function under the control of the central bank. It accepts deposits from the commercial banks and advances loans to them. But, it does not deal with the general public.</i></p> <p>(ii) <i>The central bank regulates the supply of money, besides being the principal source of money supply in the economy.</i></p> <p>(iii) <i>The central bank is a custodian of forex reserves of the country. It conducts 'managed floating' to regulate exchange rate of the domestic currency.</i></p> <p>(iv) <i>The central bank is a note issuing authority. It is a currency authority of the country.</i></p> <p>(v) <i>The central bank focuses on growth and stability of the economy.</i></p>	<p>(i) <i>A commercial bank is that financial institution which accepts deposits from the general public and offers loans to the people for purpose of consumption and investment.</i></p> <p>(ii) <i>A commercial bank only contributes to the supply of money by way of credit creation.</i></p> <p>(iii) <i>A commercial bank is not a custodian of forex reserves of the country. However, it deals in the sale and purchase of foreign exchange for purpose of profit.</i></p> <p>(iv) <i>A commercial bank is not a note issuing authority. It is not a currency authority.</i></p> <p>(v) <i>A commercial bank focuses on profit maximisation.</i></p>

Q. What is the significance of centralised cash reserves with central bank?

Ans. Two observations need to be noted in this context:

- (i) Centralised cash reserves enable the RBI to offer financial help to the commercial banks during emergencies. It is called 'financial accommodation' by the RBI. Banks get financial accommodation (or financial help) in times of emergency.
- (ii) Centralised cash reserves enable the RBI to exercise control over the commercial banks. Because these reserves depend on CRR (fixed by RBI in India) and by varying the CRR, the RBI can increase or decrease the credit creation capacity of the commercial banks. Accordingly, money supply in the economy is regulated.

3. CONTROL OF MONEY SUPPLY (OR CREDIT SUPPLY) BY THE CENTRAL BANK (RBI IN INDIA)

The central bank adopts various measures to control the supply of money in the economy. Largely, these measures relate to credit supply by the commercial banks. These are broadly classified as:

- (A) Quantitative Instruments, and
- (B) Qualitative Instruments.

Following is a brief description of these instruments. It may be noted that these instruments are used to decrease the supply of money when there is inflationary spiral in the economy and to increase the supply of money when there is deflationary spiral in the economy.

(A) Quantitative Instruments of Credit Control

Quantitative instruments are those instruments of credit control which focus on the overall supply of money in the economy. Supply of money is lowered to tackle inflation, and it is raised to tackle deflation. Following is a brief description of these instruments:

- (1) **Bank Rate:** Bank rate refers to the rate of interest at which the RBI lends money to the commercial banks. It relates to instant (immediate) loan requirement of the commercial banks.

The increase (or decrease) in bank rate is often followed by increase (or decrease) in the market rate of interest (the interest rate charged by the commercial banks from the general public). Accordingly, the cost of credit (also called the cost of capital) changes in the market. When bank rate is increased, market rate of interest is also increased. Accordingly, the cost of capital increases. This lowers the demand for credit and therefore, the supply of money tends to fall. Accordingly, inflation is corrected.

On the other hand, when bank rate is decreased, market rate of interest is also decreased. Accordingly, the cost of capital decreases. This increases demand for credit and therefore, supply of money tends to rise. Accordingly, deflation is corrected.

Rise in Bank Rate → Rise in market rate of interest → Rise in cost of capital → Fall in demand for credit → Fall in the supply of money → Inflation is controlled.

Fall in Bank Rate → Fall in market rate of interest → Fall in cost of capital → Rise in demand for credit → Rise in the supply of money → Deflation is controlled.

(2) Open Market Operations: Open market operations refer to the sale and purchase of securities in the open market by the RBI on behalf of the government. By selling the securities (like, National Saving Certificates—NSCs) in the open market, the RBI soaks liquidity (cash) from the economy. And, by buying the securities, the RBI releases liquidity.

When liquidity is soaked (as during inflation), cash reserves of the commercial banks are squeezed. Implying a cut in their credit creation capacity. On the other hand, when liquidity is released (as during recession/deflation), cash reserves of the banks tend to rise. Implying a rise in credit creation capacity of the commercial banks.

Thus, inflation is corrected by selling the securities and soaking liquidity, while deflation is corrected by buying the securities and releasing liquidity.

Sale of Securities by the RBI → Soaks liquidity and leads to a fall in cash reserves of the commercial banks → Fall in credit creation capacity of the commercial banks → Fall in money supply → Inflation is controlled.

Purchase of Securities by the RBI → Releases liquidity and leads to a rise in cash reserves of the commercial banks → Rise in credit creation capacity of the commercial banks → Rise in money supply → Deflation is controlled.

Two Types of Open Market Operations

There are two types of open market operations: (i) outright, and (ii) repo.

Outright open market operations are permanent in nature. These are as discussed above. The other type is known as repo open market operations. In such type of operations, there is a promise of repurchase and resale of securities (unlike in the first type).

(3) Repo Rate: The rate at which the RBI (central bank) offers short period loans to the commercial banks by buying the government securities in the open market is called '**Repo Rate**'. In fact, it is a **Repurchase Rate**. A repurchase agreement is signed by both

the parties stating that the securities will be repurchased by the commercial banks on a given date at a predetermined price.

In other words, the RBI issues a loan cheque to the commercial banks by buying from them the government securities. But, it carries the agreement of repurchase of securities by the commercial banks at the predetermined date and at a predetermined price.

During inflation, the cost of capital is increased by increasing the repo rate. This lowers the demand for credit and accordingly, the supply of money in the economy, as desired. On the other hand, during deflation, the cost of capital is reduced by reducing the repo rate. This increases the demand for credit and accordingly, the supply of money in the economy, as desired.

Rise in Repo Rate → Rise in cost of capital → Fall in demand for credit → Fall in supply of money by the commercial banks → Inflation is controlled.

Fall in Repo Rate → Fall in cost of capital → Rise in demand for credit → Rise in supply of money by the commercial banks → Deflation is controlled.

(4) Reverse Repo Rate: The rate at which the RBI (central bank) accepts deposits from the commercial banks (through government securities) is called '**Reverse Repo Rate**'. It is also called **Reverse Repurchase Rate**. In this case, a reverse repurchase agreement is signed by both the parties stating that the securities will be repurchased on a given date at a predetermined price. Reverse repo rate allows the commercial banks to generate interest income.

When reverse repo rate is lowered, banks are discouraged to park their surplus funds with the RBI. Instead, the banks may use these funds as CRR-funds with the RBI. This leads to a rise in credit supply (money supply) by the commercial banks. Accordingly, supply of money is enhanced in the economy, as desired to control deflation. On the other hand, a rise in reverse repo rate may induce the commercial banks to park more funds with the RBI to generate interest income. This lowers their capacity to offer CRR-funds to the RBI for the creation of credit. Accordingly, supply of money is reduced in the economy, as desired to control inflation.

Fall in Reverse Repo Rate → Less funds are parked by the commercial banks with the RBI to generate interest income → More funds are used as CRR-funds with the RBI, for the creation of credit → Supply of money increases → Deflation is controlled.

Rise in Reverse Repo Rate → More funds are parked by the commercial banks with the RBI to generate interest income → Less funds are used as CRR-funds with the RBI, for the creation of credit → Supply of money decreases → Inflation is controlled.

(5) Cash Reserve Ratio (CRR): It refers to the minimum percentage of a bank's total deposits required to be kept with the RBI. It is fixed by the RBI and is varied from time to time to regulate the supply of money in the economy.

When the supply of money is to be increased, CRR is lowered, and when the supply of money is to be reduced, CRR is raised.

Rise in CRR → Rise in cash reserves for a given amount of demand deposits → Fall in money supply of the commercial banks → Inflation is controlled.

Fall in CRR → Fall in cash reserves for a given amount of demand deposits → Rise in money supply of the commercial banks → Deflation is controlled.

(6) Statutory Liquidity Ratio (SLR): Every bank is required to maintain a fixed percentage of its assets in the form of liquid assets, called SLR. The liquid assets include: (i) cash, (ii) gold, and (iii) unencumbered approved securities. The rate of SLR (like that of CRR) is fixed by the RBI and is varied from time to time. To decrease the supply of money (as during inflation), the central bank increases SLR. Accordingly, funds available for CRR-deposits (for the creation of credit) are reduced. Conversely, SLR is reduced to increase the supply of money (as during deflation) in the economy. Accordingly, funds available for CRR-deposits (for the creation of credit) are increased.

Rise in SLR → Rise in liquid assets to be held by the commercial banks with themselves → Fall in the availability of funds for CRR-deposits with the RBI → Fall in money supply of the commercial banks → Inflation is controlled.

Fall in SLR → Fall in liquid assets to be held by the commercial banks with themselves → Rise in the availability of funds for CRR-deposits with the RBI → Rise in money supply of the commercial banks → Deflation is controlled.

(B) Qualitative Instruments of Credit Control

Qualitative instruments are those instruments of credit control which focus on select sectors of the economy. These instruments are used to increase or decrease the supply of money to select sectors of the economy. (These are those sectors which are the principal source of instability in the economy.) Broadly, the qualitative instruments are placed in three categories, as under:

(1) Margin Requirement: The margin requirement refers to the difference between the current value of the security offered for loan (called collateral) and the value of loan granted. Suppose, a person mortgages his house worth ₹ 1 crore with the bank for a loan of ₹ 80 lakh. The margin requirement in this case would be ₹ 20 lakh. The margin requirement is raised when the supply of

money needs to be reduced. The margin requirement is lowered when the supply of money is to be increased. **Often the margin requirement is kept high for speculative (trading) activities.**

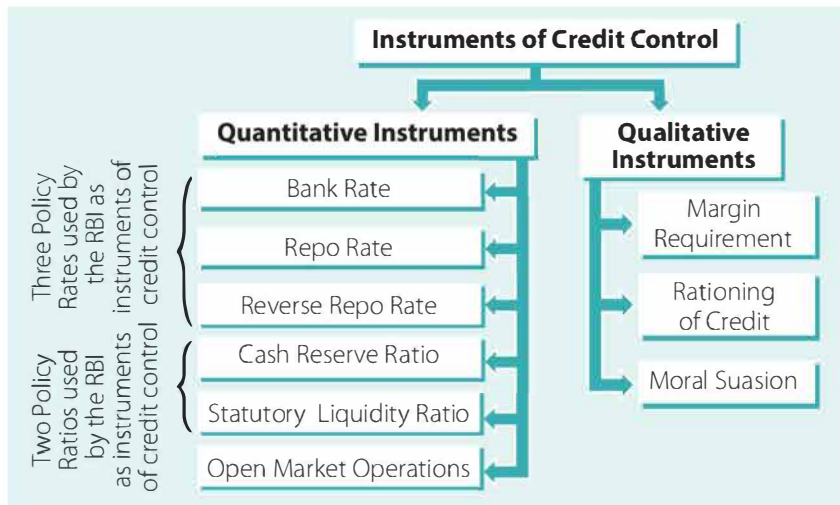
Rise in Margin Requirement → Fall in demand for credit → Fall in supply of credit by the commercial banks → Fall in money supply → Inflation is controlled.
Fall in Margin Requirement → Rise in demand for credit → Rise in supply of credit by the commercial banks → Rise in money supply → Deflation is controlled.

(2) Rationing of Credit: Rationing of credit refers to fixation of credit quotas for different business activities. Rationing of credit is introduced when the supply of credit is to be checked particularly for speculative activities in the economy. The RBI fixes credit quota for different business activities. The commercial banks cannot exceed the quota limits while granting loans. This restricts the supply of money in the economy, and inflation is controlled. On the other hand, rationing of credit (if already in practice) is withdrawn to increase the supply of money. This controls deflation.

Introduction of Credit Rationing → Decreases the supply of credit by the commercial banks → Decreases the supply of money → Inflation is controlled.
Withdrawal of Credit Rationing → Increases the supply of credit by the commercial banks → Increases the supply of money → Deflation is controlled.

(3) Moral Suasion: It is like rendering an advice to the commercial banks by the RBI to follow its directives. The banks are advised to restrict loans during inflation, and be liberal in lending during deflation.

Check the following flow chart for a summary statement of the quantitative as well as qualitative instruments of credit control:



Did You Know it?

Moral suasion is a combination of both 'persuasion' and 'pressure'. The RBI tries to persuade the commercial banks to follow its directives, but if persuasion does not work, it uses the required pressure as an apex bank of the country. If pressure also does not work, the RBI can use direct action which includes derecognition of the concerned bank. As an instrument of monetary policy, 'moral suasion' works both as a quantitative instrument as well as a qualitative instrument. However, often it is classified as a qualitative instrument.

Q. What is selective credit control?

Ans. It refers to discriminatory policy of the central bank relating to select sectors of the economy. Flow of credit to certain sectors (priority sectors) may be encouraged with a view to stimulating production in these sectors. This is a positive application of selective credit controls. On the other hand, the central bank may decide to restrict the availability of credit to certain (non-priority) sectors. Generally, during periods of inflation, availability of credit for speculative activities (like storage of food grains) is discouraged. This is a negative application of the selective credit controls.

Power Points & Revision Window

Money Creation by the Commercial Banks: Commercial banks contribute to money supply by creating credit. They do it by advancing loans (in terms of demand deposits) many times more than their cash reserves. They do it on the basis of their historical experience that the deposit holders never turn up enmass to withdraw their deposits. That, the liability towards the deposit holders can be managed by keeping only a small percentage of deposits as cash reserves.

- **Credit Multiplier** = $\frac{1}{\text{CRR}}$. It shows the number of times the commercial banks can create credit per unit of their cash reserves with the RBI. In India, CRR is fixed by the RBI.

The Central Bank is an apex bank of the entire banking system of a country. RBI is the central bank of India.

- **Functions:** (i) Bank of issuing notes, (ii) Banker to the government, (iii) Bankers' bank and supervisory role, (iv) Lender of the last resort, (v) Custodian of foreign exchange, (vi) Clearing house function, (vii) Control of credit.

Control of Money Supply by the Central Bank

Monetary Policy is the policy to control the supply of credit/money in the economy. It aims at correcting the situations of inflation and deflation in the economy. Instruments of monetary policy are broadly classified as: (i) Quantitative instruments, and (ii) Qualitative instruments. These are also called 'instruments of credit control'.

- **Quantitative Instruments of Monetary Policy:**

- (i) Three policy rates: (a) Bank rate, (b) Repo rate, and (c) Reverse repo rate.
- (ii) Two policy ratios: (a) CRR, and (b) SLR.
- (iii) Open market operations.

- **Qualitative Instruments of Monetary Policy:**

- (i) Margin requirement,
- (ii) Rationing of credit, and
- (iii) Moral suasion.

EXERCISE

1. Objective Type Questions (Remembering & Understanding based Questions)

A. Multiple Choice Questions

Choose the correct option:

- In the context of commercial bank, which one of the following statements is correct?
 - Note-issuing authority of the country
 - Creates credit on the basis of cash reserves
 - Accepts deposits of the general public
 - Both (b) and (c)
- Commercial banks create money by way of:
 - time deposits
 - demand deposits
 - treasury bills
 - bill of exchange
- Which of the following is not concerned with banking organisation?
 - Bank rate
 - Fiscal deficit
 - Credit creation
 - Cash reserve ratio
- Credit cards issued by the banks:
 - encourage consumer spending
 - increase aggregate demand in the economy
 - both (a) and (b)
 - none of these
- The main aim of the commercial banks is:
 - social welfare
 - to earn profits
 - to provide services to the people
 - none of these
- Maximum credit that the commercial banks can legally create depends on their:
 - gold reserves
 - cash reserves with the RBI
 - statutory liquidity ratio
 - term deposits
- Term deposits are those:
 - against which no cheque can be issued
 - against which no interest is paid to the depositors
 - which are a part of M_1 supply of money
 - none of these
- The percentage of demand deposits which the commercial banks are legally required to maintain as their liquid assets is called:
 - CRR
 - repo rate
 - SLR
 - reverse repo rate
- SLR requires the commercial banks to build their liquid assets by way of:
 - reserves of cash
 - reserves of gold
 - reserves of unencumbered securities
 - all of these
- Central bank is an apex bank of the country that:
 - controls the entire banking system of the country
 - issues currency
 - acts as a banker to the government
 - all of these

11. In India, the central bank is:
- (a) Federal Reserve System (b) Federal System
(c) Reserve Bank of India (d) both (a) and (b)
12. Maximum credit that the commercial banks can legally create is indicated by:
- (a) $\frac{1}{SLR}$ (b) $\frac{1}{CRR} \times \frac{1}{\text{Cash reserves with the RBI}}$
(c) $\frac{1}{CRR} \times \text{Total deposits}$ (d) $\frac{1}{CRR} \times \text{Cash reserves with the RBI}$
13. Credit control means:
- (a) contraction of credit only
(b) extension of credit only
(c) extension and contraction of money supply
(d) none of these
14. Which of the following is not the instrument of credit control?
- (a) CRR (b) SLR
(c) Bank rate (d) Managed floating
15. Which of the following does not come under quantitative methods of monetary policy?
- (a) Open market operations (b) Cash reserve ratio
(c) Moral suasion (d) Repo rate
16. Open market operations as an instrument of credit control are performed by:
- (a) the central bank of the country (b) the commercial bank of the country
(c) both (a) and (b) (d) none of these
17. With an increase in margin requirement, availability of credit in the economy:
- (a) increases (b) decreases
(c) unchanged (d) none of these
18. If inflation is to be combated, the RBI:
- (a) raises SLR and lowers CRR (b) lowers SLR and raises CRR
(c) raises both CRR as well as SLR (d) none of these
19. If recession is to be combated:
- (a) bank rate needs to be lowered
(b) CRR needs to be lowered
(c) both (a) and (b)
(d) repo rate needs to be lowered and CRR needs to be raised
20. Reverse repo rate:
- (a) generates interest income (b) is increased to curb inflation
(c) is not a policy rate (d) both (a) and (b)

Answers

1. (d) 2. (b) 3. (b) 4. (c) 5. (b) 6. (b) 7. (a) 8. (c) 9. (d) 10. (d)
11. (c) 12. (d) 13. (c) 14. (d) 15. (c) 16. (a) 17. (b) 18. (c) 19. (c) 20. (d)

B. Fill in the Blanks

Choose appropriate word and fill in the blank:

- Commercial banks contribute to the supply of money by way of _____ .
(loans in cash/loans in demand deposits)
- _____ deposits arise on account of loans by the banks to the people.
(Primary/Secondary)
- In case, a commercial bank fails to get financial accommodation from anywhere, it approaches the _____ as a last resort.
(cooperative bank/central bank)
- _____ relates to instant (immediate) loan requirement of the commercial banks.
(Bank rate/Repo rate)
- Demand Deposits = Primary deposits + _____ . (Bank deposits/Secondary deposits)
- By selling the securities in the open market, the RBI _____ liquidity (cash) from/into the economy.
(soaks/releases)
- Rationing of credit is the _____ method to control money supply in the economy.
(quantitative/qualitative)
- As an advisor to the government, central bank frames policies to regulate the _____ .
(capital market/money market)
- Central bank conducts _____ to regulate exchange rate of the domestic currency.
(managed floating/dirty floating)
- Liquid assets of the commercial banks which they are required to maintain as a minimum percentage of their total deposits refer to _____ .
(cash reserve ratio/statutory liquidity ratio)

Answers

- | | | | |
|-----------------------------|-------------------------------|-----------------|-----------------|
| 1. loans in demand deposits | 2. Secondary | 3. central bank | 4. Bank rate |
| 5. Secondary deposits | 6. soaks | 7. qualitative | 8. money market |
| 9. managed floating | 10. statutory liquidity ratio | | |

C. True or False

State whether the following statements are True or False:

- In India, LRR is determined by the commercial banks themselves. (True/False)
- Banks lend money many times more than their cash reserves with the RBI. (True/False)
- Higher the CRR, higher is the capacity to create money. (True/False)
- The central bank focuses on growth and stability of the economy. (True/False)
- Open market operations are conducted by the RBI to regulate the supply of money. (True/False)
- When the supply of money is to be increased, CRR is raised. (True/False)
- Credit creation is the principal function of the central bank. (True/False)
- Margin requirement is a quantitative method of credit control. (True/False)
- The notes issued by the central bank are an unlimited legal tender. (True/False)
- With rationing of credit, supply of money is reduced. (True/False)

Answers

1. False 2. True 3. False 4. True 5. True 6. False 7. False 8. False 9. True 10. True

D. Matching the Correct Statements

I. From the set of statements given in Column I and Column II, choose the correct pair of statements:

Column I	Column II
(a) SLR	(i) Fixed by the commercial banks
(b) Primary deposits	(ii) Derivative deposits
(c) Commercial bank	(iii) Advisor to the government
(d) Central bank	(iv) Provides 'Clearing House' facility
(e) Secondary deposits	(v) Not a part of total demand deposits of the banks

Answer

(d) Central bank—(iv) Provides 'Clearing House' facility

II. Identify the correct sequence of alternatives given in Column II by matching them with respective items in Column I:

Column I	Column II
(a) Demand deposits	(i) $\frac{1}{\text{CRR}}$
(b) Central bank	(ii) Fixed by the RBI
(c) Money multiplier	(iii) Repurchase rate
(d) Repo rate	(iv) $\frac{1}{\text{CRR}} \times \text{Cash Reserves}$
(e) CRR	(v) An apex bank of the country

Answers

(a)—(iv), (b)—(v), (c)—(i), (d)—(iii), (e)—(ii)

E. 'Very Short Answer' Objective Type Questions

1. Define credit multiplier.

Ans. Credit multiplier is the reciprocal of CRR (cash reserve ratio).

$$\text{Credit Multiplier} = \frac{1}{\text{CRR}}$$

2. Define primary deposits.

Ans. Primary deposits are cash deposits with the commercial banks by the people. These are a part of demand deposits of the banks.

3. What are secondary deposits?

Ans. Secondary deposits are those deposits which arise on account of loans by the banks to the people. These are reflected as a part of demand deposits of the banks. These are also called derivative deposits.

4. What is a central bank?

Ans. A central bank is an apex institution of a country that controls and regulates the monetary and financial system of the country.

5. Define CRR.

Ans. CRR (cash reserve ratio) refers to the legally required cash reserves of the commercial banks with the central bank as a percentage of their total deposits.

6. **What is SLR?**
Ans. SLR (statutory liquidity ratio) refers to liquid assets of the commercial banks which they are required to maintain as a minimum percentage of their total deposits.
7. **Define bank rate.**
Ans. The bank rate is the rate at which the central bank of the country offers loans to the commercial banks by discounting the securities. It is also called discount rate: the rate at which securities are discounted for purpose of loans. It does not involve any collateral, and it does not allow repurchase of securities.
8. **What is repo rate?**
Ans. Repo rate is the rate of interest at which commercial banks can raise short-term loans from the central bank.
9. **What is reverse repo rate?**
Ans. Reverse repo rate is the rate of interest at which commercial banks can park their surplus funds with the central bank, for short period of time.
10. **What do you mean by open market operations?**
Ans. Open market operations refer to the sale and purchase of government securities in the open market by the central bank of the country.
11. **Define margin requirement.**
Ans. Margin requirement refers to the difference between market value of the security offered for loans and the amount of loans offered by the commercial banks.
12. **Define moral suasion.**
Ans. Moral suasion refers to persuasion as well as pressure exercised by the central bank on the commercial banks to be restricted and selective in lending during inflation, and to be liberal in lending during deflation.

2. Reason-based Questions (Comprehension of the Subject-matter)

Read the following statements carefully. Write True or False with a reason.

1. **Higher CRR implies higher capacity to create credit.**
Ans. False. Higher CRR implies lower capacity of the commercial banks to create credit. Because, credit multiplier is the reciprocal of CRR.
2. **By purchasing government securities in the open market, the central bank intends to release more money supply in the market.**
Ans. True. Central bank buys government securities with a view to increase the money supply. Purchase of securities by the central bank leaves more money with the people. It also increases liquidity of the commercial banks to create more credit (in terms of demand deposits).
3. **Margin requirement is raised by the central bank with a view to increasing money supply.**
Ans. False. To increase money supply, the central bank lowers the margin requirement so that people are induced to raise loans and the banks are able to create more credit by way of loans.
4. **During periods of depression, commercial banks are advised to follow dear money policy.**
Ans. False. To curb depression, supply of money needs to be increased. Accordingly, commercial banks are advised to pursue cheap money policy.
5. **The central bank is a lender of last resort.**
Ans. True. A central bank advances loan to a commercial bank when the latter fails to get financial accommodation from anywhere against approved securities.

6. **The central bank is a banker to the government.**
 Ans. True. As a banker to the government, central bank keeps the accounts of all government banks and manages government treasuries.
7. **The commercial bank has the currency authority.**
 Ans. False. The central bank is the sole issuing authority in the country. It has the exclusive right of note issuing.
8. **In India, CRR and SLR are fixed by the commercial banks themselves.**
 Ans. False. In India, CRR and SLR are fixed by the RBI.
9. **Demand deposits are equal to cash deposits with the commercial banks.**
 Ans. False. Cash deposits are only primary deposits with the commercial banks. Deposits created by way of loans are secondary deposits.

$$\text{Demand Deposits} = \text{Primary deposits} + \text{Secondary deposits}$$
10. **Secondary deposits of a commercial bank are always less than its primary deposits.**
 Ans. False. Secondary deposits are many times more than the primary deposits of a commercial bank. Because, primary deposits are cash deposits. A commercial bank can park its cash with RBI as 'cash reserves'. It can legally create secondary deposits (by way of loans) many times more than their cash reserves.
11. **When CRR is raised, credit creation by the commercial banks is not necessarily reduced.**
 Ans. True. Because commercial banks may have some excess reserves.
12. **CRR and SLR work opposite to each other.**
 Ans. False. CRR and SLR are complementary to each other. A rise in these ratios controls the creation of credit, and *vice versa*.
13. **Market rate of interest tends to be positively related to the bank rate.**
 Ans. True. Increase or decrease in bank rate is often followed by increase or decrease in the market rate of interest.
14. **Repo rate is the rate of interest charged by the bank on commodity loans.**
 Ans. False. Repo rate is that rate at which central bank offers short-term loans to commercial banks.
15. **Higher repo rate implies higher credit creation capacity of the banks.**
 Ans. False. Higher repo rate implies lower credit creation capacity of the banks. Because, banks are not induced to borrow liquidity (cash) from the RBI for enlarging their credit-market.
16. **The commercial banks design all instruments of monetary policy and the central bank controls them.**
 Ans. False. Central bank designs all instruments of monetary policy and also controls them.
17. **The commercial banks are the controller of money supply.**
 Ans. False. The central bank controls the money supply in the economy. The commercial banks only contribute to money supply by way of credit creation.
18. **The central bank issues currency on the basis of CRR.**
 Ans. False. Central bank does not issue currency on the basis of CRR. The ratio CRR impacts credit creation capacity of the commercial banks.

3. HOTS & Applications

1. **If the commercial banks buy government securities, their capacity to create credit is reduced. Do you agree?**
 Ans. Yes, the given statement is correct. By allowing or inducing the commercial banks to buy government securities, the central bank soaks cash balances of the commercial banks which they could use to create credit. Accordingly, the credit creation capacity of the commercial banks is reduced.

2. **Is it correct that when margins are raised, demand for loans is negatively impacted?**
Ans. When margins are raised, the difference between the market value of the security offered for loans and value of loans granted becomes high. It is now expensive for the people to take loans from the banks. Therefore, demand for loans reduces in the economy. Thus, the given information is correct.
3. **Is repo rate an instrument of qualitative credit control?**
Ans. No, repo rate is an instrument of quantitative credit control. It impacts the availability of credit across all sectors of the economy.
4. **If CRR is lowered, investment demand must rise. Defend or refute.**
Ans. Yes, the above statement is correct. If CRR is lowered, credit creation capacity of the commercial banks is enhanced. Higher availability of credit and at lower interest rate must lead to a rise in investment demand.
5. **How is quantitative credit control different from qualitative credit control?**
Ans. Quantitative credit control refers to overall credit control in the economy, affecting all sectors of the economy equally and without discrimination. Qualitative credit control refers to selective credit control that focuses on allocation of credit to different sectors of the economy. Flow of credit is encouraged to the priority sectors, while it is discouraged to the non-priority sectors.
6. **Commercial banks create credit only on the advice of the government. Is it true?**
Ans. No, this is false. Commercial banks do not create credit only on the advice of the government. However, their capacity to create credit depends on credit policy of the central bank of the country.
7. **Commercial banks do not have the note issuing authority, but they do contribute to money supply in the economy. Comment.**
Ans. Yes, the given statement is correct. The central bank is the sole authority of issuing notes in the country. However, by advancing loans through credit creation, commercial banks contribute to money supply in the economy.
8. **What role does CRR play in the creation of credit by the commercial banks?**
Ans. CRR (cash reserve ratio) sets a limit up to which commercial banks can legally create credit.
 Example: If CRR = 4%, it implies that the commercial banks can create credit (by way of loans) maximum up to 25 times $\left(\frac{1}{4\%} = 25\right)$ of their cash reserves with the RBI.
9. **“Rate cuts might not be imminent”–Reserve Bank of India. [The Economic Times]**
Why RBI is not ready to cut the rates? Write your opinion.
Ans. Here, rate cut refers to repo rate. The RBI believes that a cut in repo rate is going to fuel retail inflation which is already high. Hence, a cut in repo rate (which will increase money supply in the economy) is not recommended.
10. **RBI lowers repo rate from 5.40% to 5.15%. [4th October, 2019]**
Analyse the economic value of this statement from the viewpoint of (i) the households, (ii) investors, and (iii) the economy.
Ans. A cut in repo rate (the rate at which commercial banks can raise loans from RBI) is expected to be followed by a cut in market rate of interest (the rate at which the commercial banks offer loans to the people). It is expected to impact the households, investors, and the economy as under:
 (i) **Impact on Households:** A cut in market rate of interest (followed by a cut in repo rate) is expected to induce borrowings for the purchase of consumer durables, as well as houses and flats. Also, the existing loans (raised against floating interest rate) will now attract lower EMI. Implying a direct monetary benefit to the households.

- (ii) **Impact on the Investors:** As a result of a cut in the market rate of interest, the cost of borrowings (implying the cost of capital) will reduce. Accordingly, investment is expected to increase across all areas of production activity.
- (iii) **Impact on the Economy:** When demand for consumer durables rises, aggregate demand is expected to rise. Aggregate demand also tends to rise when investment expenditure rises. Because both consumption expenditure and investment expenditure are significant components of aggregate demand. Thus, the level of planned output is expected to rise along with the level of planned purchase in the economy. Accordingly, the equilibrium GDP level is expected to rise. Implying a rise in the growth rate of GDP.

4. Analysis & Evaluation

1. How, in your opinion, credit creation by the commercial banks accelerates the pace of economic growth? Write two observations.

Ans. Following observations may be noted in this regard:

Observation-1: Credit creation accelerates the process of growth by expanding the availability of credit for purpose of investment.

Observation-2: Credit creation contributes to the process of growth by expanding size of the market (or aggregate demand), as the availability of credit for the purchase of consumer durables increases.

2. How improvement in banking habits of the people pushes up credit availability from the commercial banks?

Ans. When banking habits of the people improve, they start holding less money as cash-in-hand. Instead, more and more money is deposited with the commercial banks. Accordingly, cash reserves of the commercial banks start rising. Higher cash reserves of the banks enable them to deposit more funds with the RBI as CRR-deposits. If CRR remains constant, higher CRR-deposits with the RBI gives the commercial banks the legal authority to create more credit by way of loans/credit. Accordingly, availability of credit from the commercial banks is increased.

3. How can 'Jan-Dhan Yojana' be used as an instrument to increase supply of money by the commercial banks?

Ans. A large section of the population in India do not have their bank accounts. 'Jan-Dhan Yojana' prompts people to open their bank accounts. When more and more accounts are opened then some of the cash balances with the people (or idle cash lying with the people) is bound to reach the banking system as cash deposits or primary deposits. This increase enables commercial banks to increase their cash reserves with the central bank. If ΔCR (additional cash reserves with the RBI) = ₹ 10,000 and if CRR = 4%, then the additional demand deposits the banks can create = $\frac{1}{4\%} \times ₹ 10,000 = ₹ 2,50,000$. This is how 'Jan-Dhan Yojana' may be used as an instrument to increase supply of money by the commercial banks.

4. Why has the Government in India failed to combat inflation even when a series of monetary measures are available in the textbook of macroeconomics?

Ans. Monetary measures of combating/controlling inflation focus largely on moderating/lowering the demand for goods and services by making the availability of credit costlier and difficult. It does not address supply side of the problem.

While the fact of the matter is that in India inflation has often been triggered by (led by) the low market supplies. Unless supplies are boosted (particularly the supply of farm output) we shall continue to wrestle with inflation without taming (correcting) it.

5. Analyse the impact of demonetisation (of 500 and 1,000 rupee notes) on credit creation by the commercial banks in the Indian economy.
- Ans. Demonetisation has led to huge deposits of cash in the commercial banks. Primary deposits of the banks have risen significantly. This enables them to keep higher CRR-deposits with the RBI. Accordingly, credit creation capacity of the commercial banks is expected to rise.

5. CBSE Questions—Past 5 years (With Answers or Reference to the Text for Answers)

1. Explain 'government's bank' function of central bank. [CBSE Delhi 2015; (F) 2015, 2016]

Or

Explain "banker to the government" function of the central bank. [CBSE Delhi 2017]
[Page 155]

2. Explain the 'bank of issue' function of central bank. [CBSE Delhi 2015; (AI) 2015; (F) 2016]
[Page 154]

3. Government of India has recently launched 'Jan-Dhan Yojana' aimed at every household in the country to have at least one bank account. Explain how deposits made under the plan are going to affect national income of the country. [CBSE Delhi 2015]

[With the introduction of 'Jan-Dhan Yojana' by the Government of India, millions of people have opened their bank account. This has enhanced primary deposits of the commercial banks. It is on the basis of their primary deposits (cash deposits) that the banks are able to create secondary deposits. It leads to expansion of credit in the financial market. Accordingly, investment tends to rise. Higher investment leads to increase in national income of the country.]

4. Explain the "bankers' bank" function of the central bank. [CBSE (AI) 2015, 2017; (F) 2015, 2016]
[Page 155]

5. Currency is issued by the central bank, yet we say that commercial banks create money. Explain. How is this money creation by commercial banks likely to affect the national income? Explain. [CBSE (AI) 2015]

Or

Why do we say that commercial banks create money while we also say that the central bank has the sole right to issue currency? Explain. What is the likely impact of money creation by the commercial banks on national income? [CBSE (F) 2015]

[Money supply has two components: currency and demand deposits. Currency is issued by the central bank whereas demand deposits are created by the commercial banks. They create money in the form of demand deposit related to the loans offered by them. Demand deposits of the commercial banks are many times more than their cash reserves. This is based on the historical experience of the banks that cash withdrawal of funds is only a small percentage of the total demand deposits.

The money created by the commercial banks in the form of demand deposits is mainly used for investment or production purposes. Any rise in investment leads to many times more increase in the national income of an economy, via., the multiplier effect.]

6. Explain how 'bank rate' is helpful in controlling credit creation? [CBSE Delhi 2016]
[Page 157, 158]

7. Explain how open market operations are helpful in controlling credit creation. [CBSE Delhi 2016]
[Page 158]

8. Explain how 'margin requirements' are helpful in controlling credit creation. [CBSE Delhi 2016]
[Page 160, 161]

9. Explain the role of cash reserve ratio in controlling credit creation. [CBSE (AI) 2016]
[Page 160]
10. Explain how 'repo rate' can be helpful in controlling credit creation. [CBSE (AI) 2016]
[Page 158, 159]
11. Explain the role of 'reverse repo rate' in controlling credit creation. [CBSE (AI) 2016]
Or
Explain the role of 'reserve repo rate' in controlling money supply. [CBSE Delhi 2017]
[Page 159]
12. The ratio of total deposits that a commercial bank has to keep with Reserve Bank of India is called: (choose the correct alternative) [CBSE Delhi 2017]
(a) Statutory liquidity ratio (b) Deposit ratio
(c) Cash reserve ratio (d) Legal reserve ratio
[(c)]
13. Explain the process of credit creation by commercial banks. [CBSE (AI) 2017]
Or
Explain the money creation function of commercial banks. [CBSE (F) 2017]
[Page 151–153]
14. Repo rate is the rate at which: [CBSE (F) 2017]
(a) commercial banks purchase government securities from the central bank
(b) commercial banks can take loans from the central bank
(c) commercial banks can keep their deposits with the central bank
(d) short-term loans are given by commercial banks
[(b)]
15. Explain the "varying reserve requirements" method of credit control by the central bank. [CBSE (F) 2017]
[Page 160]
[Note: Varying reserve requirements is the same as varying cash reserve ratio.]
16. Credit creation by commercial banks is determined by: (choose the correct alternative) [CBSE 2018]
(a) Cash Reserve Ratio (CRR) (b) Statutory Liquidity Ratio (SLR)
(c) Initial deposits (d) All the above
[(d)]
17. What is monetary policy? State any three instruments of monetary policy. [CBSE 2018]
[Monetary policy is the policy pursued by the central bank to regulate supply of money in the economy.
The three main instruments of monetary policy are: (i) Repo Rate, (ii) Cash Reverse Ratio, and (iii) Open Market Operations. Page 157–159]
18. Elaborate any two instruments of credit control, as exercised by the Reserve Bank of India. [CBSE 2019 (58/1/1)]
[Page 157–161]
19. Define credit multiplier. What role does it play in determining the credit creation power of the banking system? Use a numerical illustration to explain. [CBSE 2019 (58/1/1)]
[Credit multiplier refers to the number of times the commercial banks can create credit per unit of cash reserves with the RBI. It reflects credit creation power of the banking system in the country. Implying the power to influence the supply of money in the economy.]

Illustration:

$$k = \frac{1}{\text{CRR}} \quad [k: \text{Credit multiplier; CRR: Cash reserve ratio}]$$

Assuming CRR = 2%

$$k = \frac{1}{2\%} = 50$$

Implying that commercial banks can create credit 50 times of their cash reserves with the RBI.

In case, CRR is raised to 4%, i.e.,

$$k = \frac{1}{4\%} = 25$$

Implying that credit creation power of the commercial banks is reduced to half. It would lead to a significant cut in money supply in the economy.]

20. Define 'money multiplier'. [CBSE 2019 (58/2/1)]
[Page 154]
21. Distinguish between 'Qualitative and Quantitative tools' of credit control as may be used by a Central Bank. [CBSE 2019 (58/2/1)]
[Page 157–161]
22. Discuss briefly the following functions of a Central Bank:
(i) Banker's bank.
(ii) Lender of last resort. [CBSE 2019 (58/2/2)]
[Page 155]
23. Discuss briefly the "credit controller" function of a Central Bank. [CBSE 2019 (58/2/3)]
[Page 156–161]
24. According to a report forwarded by the Reserve Bank of India, there was a fall in rate of inflation as measured by Consumer Price Index (CPI) on year-on-year basis to 5% from 8% in the previous year. Which of the following statements represents the situation?
(a) CPI has fallen (b) CPI has risen at a rate lower than the preceding year
(c) CPI is constant (d) None of the above
[(b)] [CBSE 2019 (58/3/1)]
25. Explain the process of money creation by a commercial bank using a hypothetical numerical example. [CBSE 2019 (58/3/1)]

Or

Discuss briefly the credit creation process of the banking system, using a hypothetical numerical example. [CBSE 2019 (58/4/3)]

[Page 151–153]

26. State the role played by the central bank as the "lender of last resort". [CBSE 2019 (58/4/1)]
[Page 155]
27. Explain, using a numerical example, how an increase in reserve deposit ratio affects the credit creation power of the banking system. [CBSE 2019 (58/4/1)]
[Page 172, Q. 19]
28. Explain, using a numerical example, how a reduction in reserve deposit ratio, affects the credit creation power of the banking system. [CBSE 2019 (58/4/2)]

[$k = \frac{1}{\text{CRR}}$ [k: Credit multiplier; CRR: Cash reserve ratio]

Assuming CRR = 4%

Accordingly,

$$k = \frac{1}{4\%} = 25$$

Implying that commercial banks (banking system in the country) can create credit upto 25 times of their cash reserves with the RBI.

In case, CRR is cut to 2%,

$$k = \frac{1}{2\%} = 50$$

Implying that credit creation power of the commercial banks is doubled. It would lead to a significant rise in the supply of money in the economy.]

29. If legal reserve ratio is 20%, the value of money multiplier would be _____.
(Choose the correct alternative) [CBSE 2019 (58/5/1)]
- (a) 2 (b) 3
(c) 5 (d) 4
[(c)]
30. What are primary deposits? [CBSE 2019 (58/5/1)]
[Page 153]
31. Explain the following functions of the Central Bank:
(i) Banker's bank.
(ii) Authority of currency issue. [CBSE 2019 (58/5/1)]
[Page 154, 155]
32. Explain the following functions of the Central Bank:
(i) Lender of last resort.
(ii) Banker to the Government. [CBSE 2019 (58/5/2)]
[Page 155]
33. (a) Explain how using "Bank Rate" the Central Bank can regulate money supply in an economy.
(b) What is meant by 'Repo Rate'? [CBSE 2019 (58/5/3)]
[Page 157, 158]

6. NCERT Questions (With Hints to Answers)

1. What are the instruments of monetary policy of RBI?
[Hint: Instruments of monetary policy of RBI are broadly classified as:
(a) **Quantitative Instruments:** (i) Bank Rate, (ii) Repo Rate, (iii) Reverse Repo Rate, (iv) CRR (Cash Reserve Ratio), (v) SLR (Statutory Liquidity Ratio), and (vi) Open Market Operations.
(b) **Qualitative Instruments:** (i) Margin requirement, (ii) Rationing of credit, (iii) Moral suasion.]
2. Do you consider a commercial bank 'creator of money' in the economy?
[Hint: Yes, commercial banks are an important source of creating credit in the economy. They create credit in the form of demand deposits related to the loans offered by them. Demand deposits of the commercial banks are many times more than their cash reserves. If cash reserves are (say) ₹ 1,000 and if demand deposits are (say) ₹ 10,000, then the commercial banks are creating credit ten times of their cash reserves. Accordingly, on the basis of cash reserves of ₹ 1,000, the commercial banks are contributing ₹ 10,000 to the supply of money.]
3. What role of RBI is known as 'lender of last resort'?
[Hint: As a lender of last resort, the central bank stands as a guarantor to the commercial banks during financial emergencies. A commercial bank may lose confidence of the depositors prompting them to withdraw their deposits enmass. Since cash reserves of the commercial bank are only a fraction of its demand deposits, its reserves may run out, pushing the bank into financial crises. It is the central bank during such times that stands by the commercial bank as a guarantor and saves it from insolvency.]

7. Miscellaneous Questions and Reference to the Text for Answers

A. Questions of 3 & 4 marks each

1. State the main functions of a central bank.

Or

State any three main functions of a central bank. Describe any one of them. [Page 154–156]

2. How is the central bank different from commercial bank? [Page 156]
3. Explain any one of the following functions of a central bank:
 - (i) Currency authority, and
 - (ii) Lender of last resort. [Page 154, 155]
4. Explain the 'bankers bank' function of the central bank. [Page 155]
5. Explain 'banker to the government' function of the central bank. [Page 155]
6. How does a central bank perform the function of controller of credit? [Page 156]
7. State any three methods by which a central bank tries to control the quantity of credit. [Page 157–161]
8. What is repo rate? How does it control the supply of credit in the economy? [Page 158, 159]
9. How does a central bank control the availability of credit by open market operations?

Or

What are open market operations? How do these work as a method of credit control? [Page 158]

B. Questions of 6 marks each

1. Define a central bank. What are the functions of central bank? [Page 154–156]
2. "Commercial banks create money in the economy." Comment. [Page 151–153]
3. How does the central bank of a country control the supply of money in an economy? [Page 157–161]
4. State the basic difference between quantitative and qualitative instruments of credit control. Give suitable examples. [Page 157–161]

DOs and DON'Ts

1. It needs to be noted with emphasis that while the commercial banks are a source of money supply in the economy, they DO NOT have the authority of issuing notes or coins. They are a source of money supply only as creators of credit or bank money.
2. Both CRR and SLR are legally determined by the RBI. But, both are independently determined, as these are differently estimated. Never miss the point that while CRR has a direct bearing on credit creation by the commercial banks (as it sets the limit up to which the commercial banks can legally create credit), SLR impacts credit creation only indirectly by increasing or decreasing the amount of liquid assets of the commercial banks (Check text for details).

- **Success of Repo Rate as an Instrument of Credit Control**

Success of repo rate policy as an instrument of credit control depends on the following factors:

- (i) **Degree of Dependence of the Commercial Banks upon the Central Bank for Loans:** If commercial banks have their own surplus funds which they can utilise during periods of high credit needs, their dependence on the central bank is reduced.
- (ii) **Degree of Sensitivity of Bank's Demand for Funds from the Central Bank:** Depending on business conditions, commercial banks may not be very sensitive to small variations in repo rate. In such situations, repo rate policy may not be a big success.
- (iii) **Structure of Interest Rates in the Money Market:** If non-banking financial institutions in the market do not vary their interest rates in accordance with what the central bank expects from the commercial banks, the repo rate policy may not succeed.
- (iv) **Overall Supply of Funds in the Market:** Repo rate policy may not be a success if non-banking sources of funds are more popular than the banking sources.

- **Success of Open Market Operations as an Instrument of Credit Control**

Success of open market operations as an instrument of credit control depends on the following factors:

- (i) **Existence of Securities Market:** There must be a well organised and well functioning market for the sale and purchase of securities. In the absence of it, open market operations would be little significance as an instrument of monetary policy.
- (ii) **Excess Reserves with the Banks:** If commercial banks have healthy excess reserves as 'Vault Cash' they need not buy securities. This is the standard practice in developed countries like USA. Accordingly, open market operations fail to be a successful instrument of credit control.

- **Difference between Bank Rate and Repo Rate**

Bank Rate	Repo Rate
(i) Bank rate relates to the loans offered by the RBI to the commercial banks without any collateral (security for purpose of loans).	(i) Repo rate relates to the loans offered by the RBI to the commercial banks NOT without collateral. The securities are pledged as a security for the loans.
(ii) Bank rate does not allow any facility of repurchase of securities. The bank rate is simply the Rate of Discount.	(ii) Repo rate allows repurchase of securities. The holder of securities can repurchase them at a later date. Therefore, repo rate is also called Repurchase Rate.
(iii) Bank rate relates to borrowings by the commercial banks to cope with their immediate cash-crunch.	(iii) Repo rate relates to short-term borrowings by the commercial banks.

[**Note:** Bank rate is often higher than the repo rate as it (bank rate) relates to instant loan requirement of the commercial banks.]



AGGREGATE DEMAND, AGGREGATE SUPPLY AND RELATED CONCEPTS

TO
DO

- *Concept of AD (Aggregate Demand)*
- *Components of AD (Aggregate Demand)*
- *Concept of AS (Aggregate Supply)*
- *Consumption Function*] *with reference to Propensity to Consume*
- *Saving Function*] *and Propensity to Save*
- *Relationship between Propensity to Consume and Propensity to Save*


I. CONCEPT OF AD (AGGREGATE DEMAND)

Following observations need to be noted to understand the concept of AD in macroeconomics:

- (i) AD does not refer to the demand for any particular good (or service) in the markets. It refers to demand for all goods and services in the economy.
- (ii) AD is often measured for the period of an accounting year. So, it is a flow concept.
- (iii) AD can be measured (a) with reference to general price level in the economy, or (b) with reference to the level of income of the people. If AD is related to the general price level, we shall find negative relationship between price level and AD. So that, AD curve slopes downward. On the other hand, if AD is related to the level of income, we shall find positive relationship between income and AD. So that, AD curve slopes upward.
- (iv) At the +2 level, we study AD only in relation to the level of income. So that, AD rises as the level of income rises in the economy.

- (v) AD is measured not as the sum total of physical quantities of goods demanded in the economy. In fact, it is not possible to do so. AD is always measured in terms of total expenditure on the goods and services.
- (vi) AD is always expressed as what people **wish to spend** or what people **plan to spend** at different levels of income. Never interpret AD as what people actually spend on the purchase of goods and services in the economy.

With these observations in mind, we may define AD as under:

	<p>AD is the sum total of expenditure that the people plan to incur on the purchase of goods and services produced in the economy (during the period of an accounting year) corresponding to their different levels of income.</p>
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Behaviour of AD: AD Schedule

Did You Know it?

AD is never zero even when Y (income) = 0. Because: Some expenditure is always essential for survival. This is incurred even when income is zero. This is done either by using the past saving or by borrowing.

Since AD is measured in terms of aggregate expenditure (on the purchase of goods and services) in the economy, behaviour of AD is studied in terms of the behaviour of aggregate expenditure at different levels of Y (income). Thus, behaviour of AD means how aggregate expenditure (AE) responds to different levels of Y in the economy. This is expressed by way of a schedule, known as AD schedule or AE schedule. **Table 1** is an example of this schedule.

Table 1. AD Schedule showing relationship between AD and Y

Y	AD (= AE or Planned Expenditure)
0	30
20	35
40	40
60	45
80	50
100	55
120	60

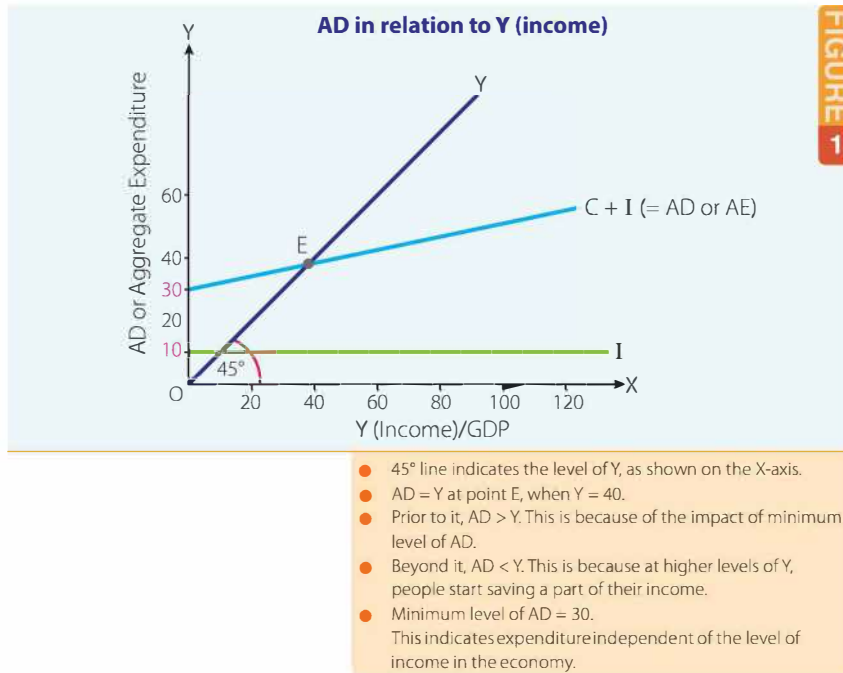
Table 1 offers following observations:

- (i) There is always some minimum level of expenditure in the economy even when $Y = 0$. Thus, $AD = 30$ when $Y = 0$. The reason is simple: you must incur some expenditure to buy goods for your survival, even when your income (Y) is absolutely zero. You may do it through borrowing, called negative saving.
- (ii) AD increases as Y increases. Thus, AD is positively related to Y .

- (iii) After a certain level of Y is reached, AD lags behind Y . Thus, when $Y = 60$, $AD = 45$. Likewise, when $Y = 80$, $AD = 50$. This happens because, at higher levels of Y , people start saving a part of their income.

AD Curve

Fig. 1 shows AD curve. It is a diagrammatic presentation of AD schedule.



AD starts from 30 on the Y -axis. It suggests minimum level of expenditure, or expenditure which is independent of the level of Y in the economy. E is the point where $AD = Y$. Prior to it, $AD > Y$. This is because of the impact of minimum level of AD . Beyond point E , $AD < Y$. This is because at higher levels of income, people tend to save a part of their income. Generally, AD increases as Y increases.

AD schedule is a table showing AD (or aggregate expenditure) corresponding to different levels of income (Y) in the economy. AD is positively related to Y . However, there is always some minimum level of AD even when $Y = 0$. At higher levels of Y , AD lags behind Y . Because, people start saving a part of their income.

AD curve is a diagrammatic presentation of AD schedule, showing AD corresponding to different levels of Y in the economy. It tends to slope upward, showing positive relationship between AD and Y .

2. COMPONENTS OF AD (AGGREGATE DEMAND)

Components of AD (or aggregate expenditure) are discussed with reference to (1) closed economy, and (2) open economy. A detailed discussion is as under:

(I) Components of AD in a Closed Economy

A closed economy may be: (i) two sector closed economy, or (ii) three sector closed economy.

A two sector closed economy includes: (i) household sector, and (ii) producer sector. Specifically, there is no government sector in this economy. Households purchase goods for purpose of consumption. Accordingly, their expenditure is called consumption expenditure (C). Producers, on the other hand, purchase goods for purpose of investment. Accordingly, their expenditure is called investment expenditure (I). Thus, in a two sector closed economy, AD has two components as these:

$$\begin{array}{ccccccc}
 \text{AD} & = & \text{C} & + & \text{I} & & \\
 \uparrow & & \uparrow & & \uparrow & & \\
 \text{Aggregate} & & \text{Household} & & \text{Producers} & & \\
 \text{Demand} & & \text{Consumption} & & \text{Investment} & & \\
 & & \text{Expenditure} & & \text{Expenditure} & & \\
 & & & & & & \left[\begin{array}{l} \text{This is equal to} \\ \text{Private Investment} \\ \text{Expenditure, as there} \\ \text{is no government sector} \end{array} \right]
 \end{array}$$

A three sector closed economy includes: (i) household sector, (ii) producer sector, and (iii) government sector. The government makes 'collective consumption expenditure'. It refers to public consumption expenditure or consumption expenditure on behalf of the society as a whole. (**Example:** Government expenditure on the purchase of food and clothes for the defence forces.) Also, the government makes investment expenditure, such as expenditure on roads and bridges. The total government expenditure (including government consumption expenditure and government investment expenditure) is indicated by G. So that, in a three sector closed economy, there are three components of AD, as these:

$$\begin{array}{ccccccc}
 \text{AD} & = & \text{C} & + & \text{I} & + & \text{G} \\
 \uparrow & & \uparrow & & \uparrow & & \uparrow \\
 \text{Aggregate} & & \text{Household} & & \text{Private} & & \text{Government} \\
 \text{Demand} & & \text{Consumption} & & \text{Investment} & & \text{Expenditure} \\
 & & \text{Expenditure} & & \text{Expenditure} & & \text{(including both} \\
 & & & & & & \text{consumption as well as} \\
 & & & & & & \text{investment expenditure)}
 \end{array}$$

(2) Components of AD in an Open Economy

An open economy includes four sectors: (i) household sector, (ii) producer sector, (iii) government sector, and (iv) rest of the world sector.

Rest of the world sector generates demand for our goods and services in terms of our exports. Thus, exports add to AD in the domestic economy. But, we also make imports from rest of the world. Imports (M) are opposite to exports (X). While exports increase AD in the domestic economy, imports decrease it. Accordingly, we find the value of net exports (X - M). It is this value which contributes to AD in the domestic economy. Accordingly, we have four components of AD in an open economy, as these:

$$\begin{array}{ccccccccc} \text{AD} & = & \text{C} & + & \text{I} & + & \text{G} & + & (\text{X} - \text{M}) \\ \uparrow & & \uparrow & & \uparrow & & \uparrow & & \uparrow \\ \text{Aggregate} & & \text{Household} & & \text{Private} & & \text{Government} & & \text{Net} \\ \text{Demand} & & \text{Consumption} & & \text{Investment} & & \text{Expenditure} & & \text{Exports} \\ & & \text{Expenditure} & & \text{Expenditure} & & \text{(including government} & & \\ & & & & & & \text{consumption expenditure} & & \\ & & & & & & \text{and government} & & \\ & & & & & & \text{investment expenditure)} & & \end{array}$$

$$AD = C + I + G + (X - M)$$



3. CONCEPT OF AS (AGGREGATE SUPPLY)

Concept of AS

AS (aggregate supply) refers to aggregate production as planned by the producers during an accounting year. It implies the flow of goods and services in the economy during an accounting year. We know, production of goods and services implies 'value addition', and value addition implies 'income generation'. Our knowledge of national income accounting tells us that 'value added' and 'income generated' are identical to each other. Accordingly, AS implies flow of income (Y) in the economy during an accounting year. AS and Y, therefore, can be treated as identical to each other.

AS refers to flow of goods and services as planned by the producers during an accounting year. It is identical with the flow of income (Y) during an accounting year. AS and Y, therefore, may be treated as identical to each other.

It needs emphasis that in the context of macroeconomic equilibrium, AS refers only to 'planned production' or 'desired production' during an accounting year. It does not refer to actual output. Desired production is what the producers desire to produce or plan to produce during an accounting year.

AS Schedule

AS schedule is a table showing the behaviour of AS, corresponding to different levels of Y. Table 2 is an example.

Table 2. AS Schedule (₹ in crore)

Y (Income)	AS (Aggregate Supply)
0	0
20	20
40	40
60	60
80	80
100	100
120	120

Table 2 shows perfect identity between AS and Y. This is explained in terms of the following observations:

- (i) Identity between Y and AS shows that the producers in the economy are ready to supply (or sell) all that they wish to produce.
- (ii) Why do the producers wish to sell/supply all that they wish to produce?

This is because, there is excess capacity in the economy. Accordingly, whenever there is a rise in demand, the producers respond to it by planning an equal rise in supply (so that their excess capacity is utilised). **Note that a proportionate increase in AS (corresponding to any increase in AD) leads to a constant price level in the economy. So that price has no role to play as a determinant of AS.**

- (iii) Why should we presume that there is excess capacity in the economy?

This, in fact, is the basic assumption of macroeconomic model as propounded by **Keynes**.

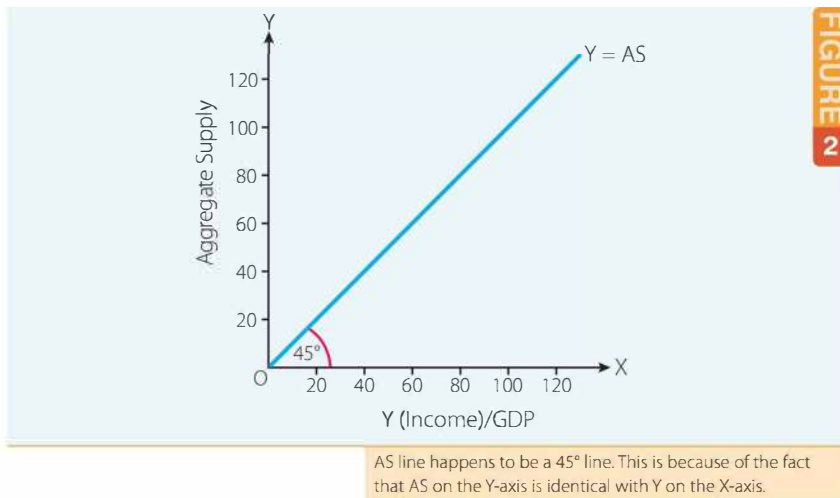
Keynes made this basic assumption because he was dealing with the economies facing severe unemployment in the wake of Great Depression of 1930's. Such economies must have excess capacity or unutilised capacity (because of the lack of demand).

Thus, we can identify AS with Y.

Did You Know?

That in macroeconomic model, as propounded by **Keynes**, price has no role to play as a determinant of AS. Because: Owing to excess capacity in the economy, there is a proportionate rise in AS as and when there is any rise in AD which leads to a constant price level in the economy.

Fig. 2 is a diagrammatic presentation of AS schedule.



The above diagram shows that AS and Y are equal to each other. Therefore, AS is indicated by a 45° line from the origin.

It must be noted that this behaviour of AS (as 45° line from the origin) is true only with respect to such economies where there is excess capacity, and AS can proportionately rise whenever there is any rise in AD.

4. CONSUMPTION FUNCTION

Household consumption expenditure (C) is an important component of aggregate demand in the economy. It is directly related to the level of income (Y). Higher Y leads to higher C, and *vice versa*.

The functional relationship (or the algebraic relationship) between C and Y is called **Consumption Function**. It reveals the behaviour of household consumption expenditure with respect to the level of income in the economy.

Studying the behaviour of C with respect to Y, the economists have identified the following points as of central significance:

- (i) There is always some minimum level of C, even when $Y = 0$. This is called **autonomous consumption**. This leads to negative saving (-S).
- (ii) Consumption is positively related to income: rise in Y causes a rise in C, and *vice versa*.
- (iii) The entire increase in Y during a particular period is not converted into C. A part of it is saved as well. So that the **rate at which C increases often lags behind the rate at which Y increases**.

Accounting for these observations, the behaviour of C with respect to Y is specified as in Table 3.

Table 3. Consumption Function: A Tabular Presentation

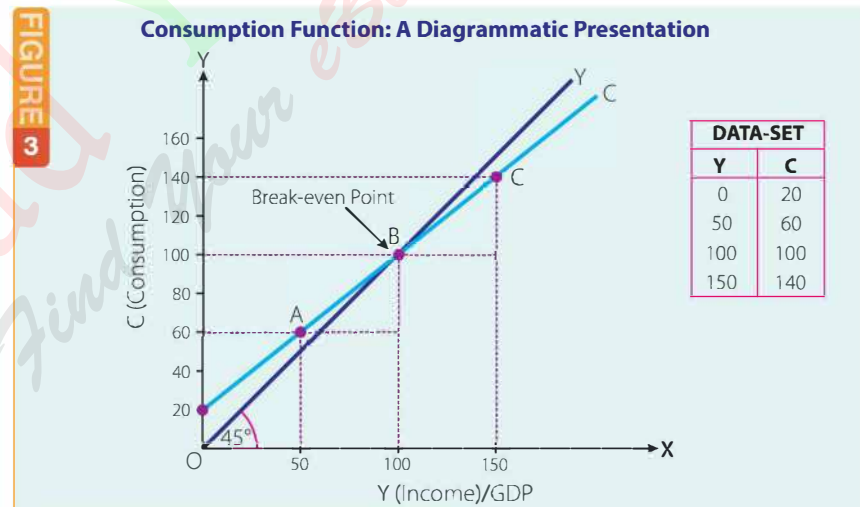
Y (₹)	C (₹)
0	20
50	60
100	100
150	140

Table 3 offers a simple tabular presentation of consumption function. It reveals that:

- (i) 20 is the minimum level of consumption. This is the level of C even when $Y = 0$.
- (ii) C rises in response to a rise in Y. So that C is positively related to Y.
- (iii) The rate at which C increases is lower than the rate at which Y increases. Thus, while Y increases each time by 50, C increases by 40 only. (The difference between Y and C indicates saving out of income.)

Diagrammatic Presentation

Diagrammatically, when the data related to consumption and income are plotted on a graph paper, we get consumption function as in Fig. 3.



Observations:

- C-line starts from 20 indicating that $C = 20$, when $Y = 0$. (This is the minimum level of consumption.)
- Initially C-line is above the Y-line. But eventually it is below the Y-line. It indicates that the rate at which C increases is lower than the rate at which Y increases.
- C-line crosses Y-line at point B. It is called 'break-even point'. Here, total consumption is equal to total income.

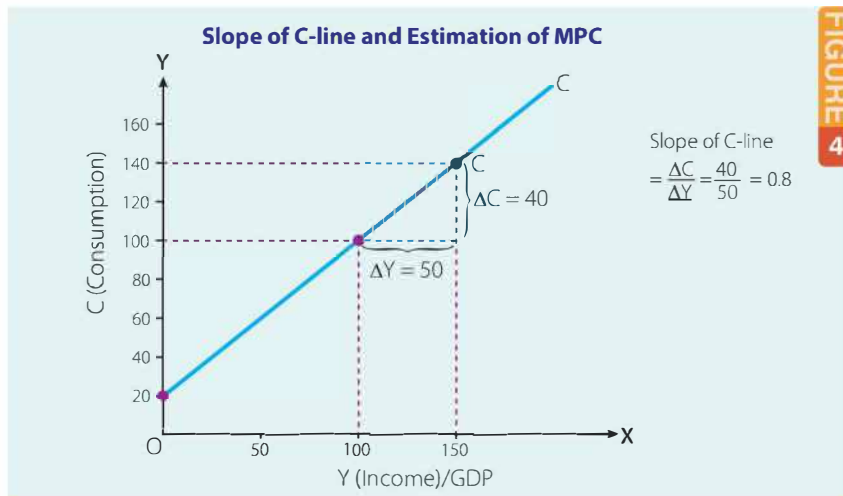
In Fig. 3, consumption is measured on Y-axis, and income on X-axis. A line making an angle of 45° and shooting from the origin is drawn as a line of reference. It indicates the equality between consumption and income.

C-line represents consumption function, indicating the behaviour of C with respect to Y. Now, note the following observations carefully:

- (i) C-line starts from 20 (on Y-axis). It is the minimum level of consumption (value of C when Y = 0).
- (ii) C-line is positively sloped, moving upward from left to right. It indicates that C is positively related to Y: higher Y leads to higher C.
- (iii) Though initially C-line is above the Y-line (45° line), eventually it remains below the Y-line. Implying that the rate at which C increases is lower than the rate at which Y increases.

Slope of C-line (Consumption Function): Marginal Propensity to Consume

Slope of C-line (indicating consumption function) needs some elaboration. It refers to the rate at which C increases in response to a given increase in Y. It indicates the proportion of additional income that goes to consumption. This is measured as the ratio between ΔC (increase in C) and ΔY (increase in Y). This is known as marginal propensity to consume (MPC). Fig. 4 shows the estimation of MPC as the slope of C-line.



The figure shows that when:

- Y increases from 100 to 150,
- C increases from 100 to 140.

So that, $\Delta C = 40$ and $\Delta Y = 50$.

$$\text{MPC (the slope of C-line)} = \frac{\Delta C}{\Delta Y} = \frac{40}{50} = 0.8$$

It shows that out of every additional rupee of income, 80% is spent as consumption expenditure.

APC and MPC are Different Concepts

Important

Both APC and MPC indicate the ratio between consumption and income. But, these are different ratios. While $\text{APC} = \frac{C}{Y}$, the ratio between total consumption and total income, $\text{MPC} = \frac{\Delta C}{\Delta Y}$, the ratio between change in consumption (additional consumption) and change in income (additional income).

It needs to be noted that APC (Average Propensity to Consume) and MPC (Marginal Propensity to Consume) are different concepts, even when both indicate the ratio between consumption and income. The difference is as under:

APC is the ratio between total consumption and total income, while MPC is the ratio between additional consumption and additional income.

Thus:

$$\text{APC} = \frac{C}{Y}$$

$$\text{MPC} = \frac{\Delta C}{\Delta Y}$$

In Fig. 4, when $Y = 150$ and $C = 140$, then:

$$\text{APC} = \frac{140}{150} = 0.933$$

In Fig. 4 again, when $\Delta Y = 50$ and $\Delta C = 40$, then;

$$\text{MPC} = \frac{40}{50} = 0.8$$

Briefly, APC shows consumption per unit of total income, whereas MPC shows consumption per unit of additional income.

Slope of C-function is indicated by MPC, NOT by APC.

Slope of a Straight Line C-function (as in Fig. 4) is Constant, so that MPC is Constant

We know that a straight line has a constant slope. So that a straight line C-function as in Fig. 4 indicates constant slope of C-function. Implying that MPC (as indicated by the slope of C-line or C function) must be constant corresponding to all levels of income. Such a C-function is called linear consumption function. It suggests that every time there is a rise in Y , a constant proportion of it is converted into C . In Fig. 4, consumption function is linear and $\text{MPC} = 0.8$, it suggests that every time there is a rise in income, 80% of it is converted into consumption.

Algebraic Presentation of C-function

Algebraically, consumption function is expressed as in the following equation:

$$C = \bar{C} + bY$$

\bar{C} in this equation refers to the minimum level of consumption. It is the value of consumption when $Y = 0$. The parameter 'b' refers to the rate at which C increases in response to an increase in Y. It is $= \frac{\Delta C}{\Delta Y}$. It is the slope of C-function, also called 'marginal propensity to consume'.

Fig. 4 shows that $\bar{C} = 20$ and $MPC = 0.8$. Using these values, we can write our consumption function equation as under:

$$C = 20 + 0.8Y$$

This equation enables us to estimate the values of C corresponding to different values of Y. Using values of Y as 50, 100 and 150 respectively (as in Table 3), we can estimate the corresponding values of C, as under:

$$C = 20 + 0.8Y \text{ (as given)}$$

$$C \text{ when } Y = 0, \quad = 20 + 0.8(0) = 20$$

$$C \text{ when } Y = 50, \quad = 20 + 0.8(50) = 20 + 40 = 60$$

$$C \text{ when } Y = 100, \quad = 20 + 0.8(100) = 20 + 80 = 100$$

$$C \text{ when } Y = 150, \quad = 20 + 0.8(150) = 20 + 120 = 140$$

We find that the estimated values of consumption are exactly the same as in Table 3. Thus, we can find the values of C once we know the values of \bar{C} , b and Y.

HOTS

Q. 1. Find C, when $\bar{C} = 200$, $MPC = 0.5$ and $Y = 1,000$.

Ans. We know that,

$$C = \bar{C} + MPC(Y)$$

Substituting the values, we get:

$$\begin{aligned} C &= 200 + 0.5(1,000) \\ &= 200 + 500 = 700. \end{aligned}$$

Q. 2. Would consumption function be linear in case MPC is constant? Give reason in support of your answer.

Ans. Yes. Consumption function would be linear in case MPC is constant. **Reason:** Constant MPC implies that C-line is a straight line (because MPC is the slope of C-line). A straight line C-line means that the consumption function is linear.

5. SAVING FUNCTION

Income is either consumed or saved, so that $Y = C + S$. We have already discussed how C behaves with respect to Y (consumption function). We now discuss how S behaves with respect to Y (saving function). **The functional relationship between S and Y is called saving function.**

Once C -function is specified, S -function can easily be derived from it. Because C and S are the only two components of income and because both C and S are determined by Y . Let us get back to the tabular presentation of C -function and see how S -function can be derived from it.

C-function (as in Table 3)

Y (₹)	C (₹)
0	20
50	60
100	100
150	140

Table 4. S-function (derived from C-function as stated above)

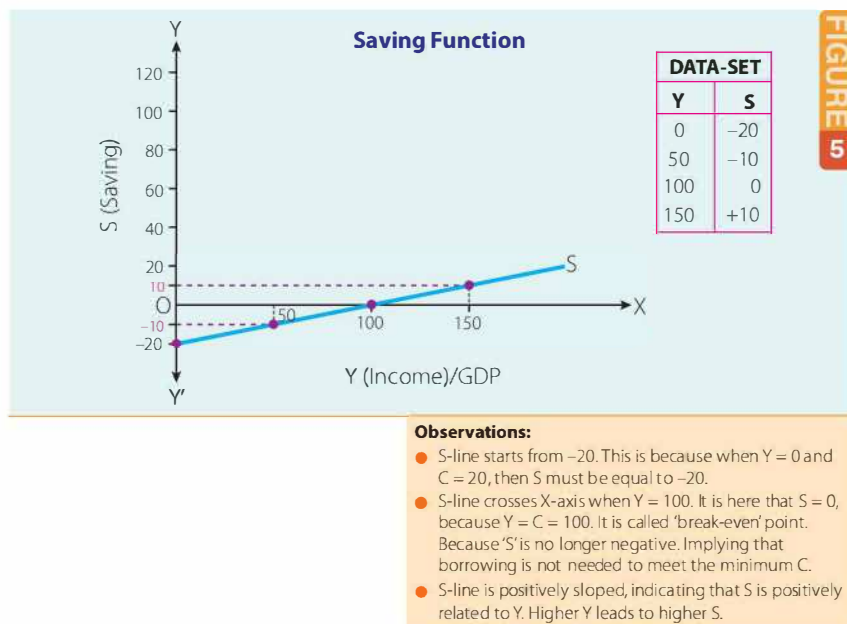
Y (₹)	$\frac{Y - C}{\downarrow}$ = $\frac{S}{\downarrow}$
0	$0 - 20 = -20$
50	$50 - 60 = -10$
100	$100 - 100 = 0$
150	$150 - 140 = +10$

The S -function as specified in Table 4 reveals that:

- (i) $S = -20$ when $Y = 0$. This is because $C = 20$ when $Y = 0$. We know that $C + S = Y$. So that, if $C = 20$ and $Y = 0$, then S must be $= -20$.
- (ii) S increases as Y increases. Implying that S is positively related to Y .
- (iii) S remains lower than Y . It is never greater than Y . Because, S is only a part of Y .

Diagrammatic Presentation

Fig. 5 shows diagrammatic presentation of S -function. It is drawn using the data-set of Table 4.



In Fig. 5, saving is measured on Y-axis, and income on X-axis. S-line represents saving function, indicating the behaviour of S with respect to Y . It offers the following observations:

- (i) S-line starts from -20 (on Y-axis). It indicates the value of S when $Y = 0$. [Note that $S = -20$, because $C = 20$ when $Y = 0$].
- (ii) S-line is positively sloped, moving upward from left to right. It indicates that S is positively related to Y : higher Y causes higher S .
- (iii) S-line crosses the X-axis when $Y = 100$. It indicates that $S = 0$ when $Y = 100$. (Here, consumption must be equal to income.) So that, $S = 0$ when $Y = 100$, S is negative when $Y < 100$, S is positive when $Y > 100$.

Slope of S-line (Saving Function): Marginal Propensity to Save

Slope of S-line (indicating saving function) refers to the rate at which S increases in response to a given increase in Y . It indicates the proportion of **additional income** that goes to saving. It is measured as the ratio between ΔS (additional saving) and ΔY (additional income). This is called marginal propensity to save (MPS). Fig. 6 shows the estimation of MPS as the slope of S-line or S-function.

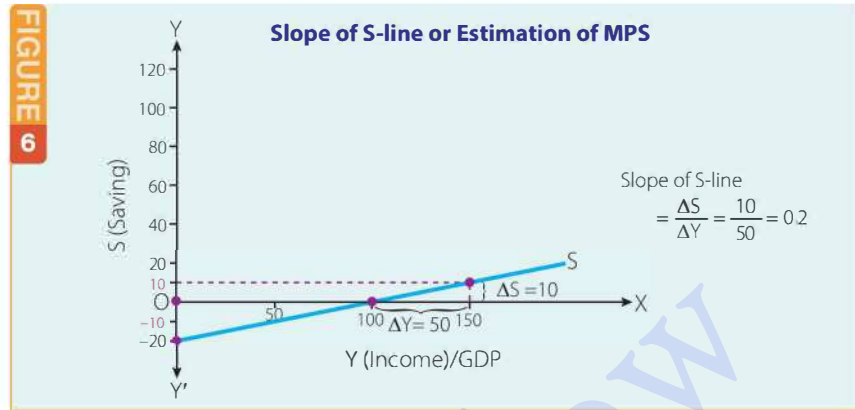


Fig. 6 show that when:

Y increases from 100 to 150,

S increases from 0 to 10.

So that, $\Delta S = 10$ and $\Delta Y = 50$.

$$\text{MPS (the slope of S-line)} = \frac{\Delta S}{\Delta Y} = \frac{10}{50} = 0.2$$

It shows that out of every additional rupee of income, 20% is saved. [This exactly matches with our C-function which shows that out of every additional rupee of income, 80% is spent as consumption expenditure.]

APS and MPS are Different Concepts

APS (Average Propensity to Save) and MPS (Marginal Propensity to Save) are different concepts, even when both indicate the ratio between saving and income.

APS is the ratio between total saving and total income, while MPS is the ratio between additional saving and additional income.

Thus:

$$\text{APS} = \frac{S}{Y}$$

$$\text{MPS} = \frac{\Delta S}{\Delta Y}$$

In Fig. 6, when $Y = 150$ and $S = 10$, then:

$$\text{APS} = \frac{10}{150} = 0.067$$

In Fig. 6 again, when $\Delta S = 10$ and $\Delta Y = 50$, then:

$$\text{MPS} = \frac{10}{50} = 0.2$$

Briefly, APS shows saving per unit of total income, whereas MPS shows saving per unit of additional income.

Slope of S-function is indicated by MPS, NOT by APS.

Slope of a Straight Line S-function (as in Fig. 6) is Constant, so that MPS is Constant

A straight line has a constant slope. So that, a straight line S-function (as in Fig. 6) indicates that it has a constant slope. Implying that MPS (as indicated by the slope of S-line or S-function) must be constant corresponding to all levels of income. Such an S-function is called linear saving function. It suggests that every time there is a rise in Y, a constant proportion of it is converted into S. In Fig. 6, saving function is linear and $MPS = 0.2$, it suggests that every time there is a rise in income, 20% of it is saved.

Algebraic Presentation of S-function

Algebraically, S-function is specified as under:

$$S = -\bar{C} + (1 - b)Y$$

$-\bar{C}$ indicates the value of S when $Y = 0$. [\bar{C} indicates the value of C when $Y = 0$. Accordingly, $-\bar{C}$ indicates the value of S when $Y = 0$.] So that, when $\bar{C} = 20$, $-\bar{C} = -20$ (which is the value of S when $Y = 0$). $1 - b = MPS$. It indicates the rate at which 'S' changes in response to a change in 'Y'. Why is $MPS = 1 - b$ (where $b = MPC$)? This is because $MPC + MPS = 1$ (see the next section for details).

Thus, if C-function is known, then the equation for S-function can be derived from C-function, as under:

$$C = 20 + 0.8Y \quad \text{(this is C-function)}$$

$$S = -20 + (1 - 0.8)Y \quad \text{(this is S-function as derived from C-function)}$$

Or,

$$S = -20 + 0.2Y$$

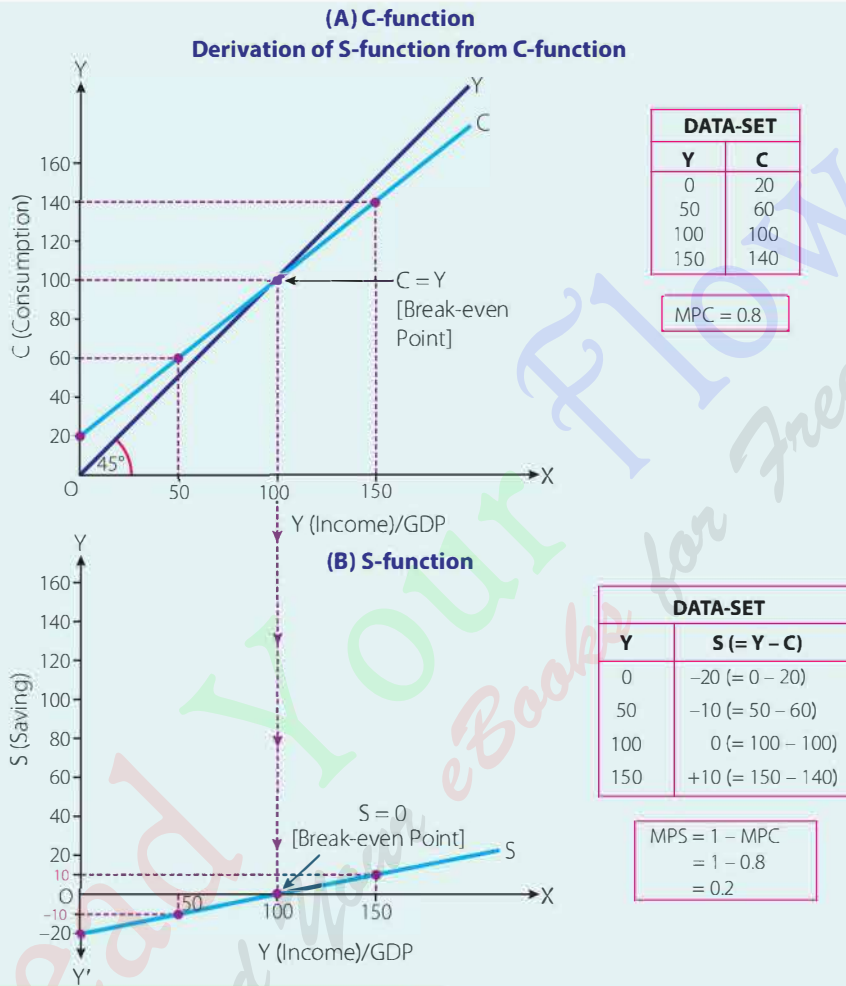
This is the value of S when $Y = 0$ and corresponds to the value of C (= 20) when $Y = 0$

This is the value of MPS when the value of $MPC = 0.8$

Derivation of S-function from C-function: Diagrammatic Illustration

Fig. 7 shows derivation of S-function from C-function.

FIGURE 7



Observations:

- S-function starts from -20 because C-function starts from $+20$. It indicates that when $Y = 0$ and $C = 20$, then S must be equal to -20 .
- $S = 0$ when $Y = 100$. This is because $C = Y$ when $Y = 100$.
- S-function is a linear function. Because S-line is a straight line, moving upward from left to right.

We need to focus on three points:

- (i) S-line starts from the point which indicates the value of \bar{S} . And the value of \bar{S} is equal to the value of \bar{C} , but with a negative sign. Thus in Fig. 7(B), S-line starts from -20 because C-line starts from $+20$.

- (ii) S-line crosses the X-axis when $C = Y$, so that $S = 0$. Thus in Fig. 7(B), S-line crosses X-axis when $C = Y = 100$, and therefore, $S = 0$.
- (iii) The slope of S-line is equal to '1 - slope of C-line'. Thus in Fig. 7(A) and 7(B), while the slope of C-line = 0.8 that of S-line = $1 - 0.8 = 0.2$. (Note that: $MPS = 1 - MPC$.)

HOTS

Q. 1. How would you specify the saving function, given the consumption function as under?

$$C = bY$$

Ans. $S = (1 - b)Y$.

[Note: In the C-function, there is no constant term like \bar{C} . Accordingly, there is no constant term like $-\bar{C}$ in the saving function. Such a C-function (or S-function) indicates that $C = 0$ (or $S = 0$) when $Y = 0$.]

Q. 2. What value will you assign to the slope of S-function when the slope of C-function is given as = 0.6?

Ans. Slope of C-function = MPC

Slope of S-function = MPS

We know, $MPC + MPS = 1$

Thus, slope of S-function = $1 - MPC$
 $= 1 - 0.6 = 0.4$.

Q. 3. Find S when $\bar{C} = 200$, $MPS = 0.4$ and $Y = 1,000$.

Ans. We know that, $S = -\bar{C} + MPS(Y)$

We also know that, saving is negative to the extent consumption is positive when $Y = 0$. So that

$$-\bar{C} = -200$$

Substituting the given values, we get:

$$\begin{aligned} S &= -200 + 0.4(1,000) \\ &= -200 + 400 \\ &= 200. \end{aligned}$$

6. RELATIONSHIP BETWEEN PROPENSITY TO CONSUME AND PROPENSITY TO SAVE

Propensity to consume refers to the ratio between consumption (C) and income (Y). It has two aspects, as noted earlier:

$$\underbrace{APC = \frac{C}{Y}}_{\text{Average propensity to consume}} \quad \text{and} \quad \underbrace{MPC = \frac{\Delta C}{\Delta Y}}_{\text{Marginal propensity to consume}}$$

Propensity to save refers to the ratio between saving (S) and income (Y). Its two aspects are:

$$\underbrace{APS = \frac{S}{Y}}_{\text{Average propensity to save}} \quad \text{and} \quad \underbrace{MPS = \frac{\Delta S}{\Delta Y}}_{\text{Marginal propensity to save}}$$

Relationship between propensity to consume and propensity to save is as expressed as in the following equations:

(i) $APC + APS = 1$.

(ii) $MPC + MPS = 1$.

These equations are explained (and proved) as under:

(i) $APC + APS = 1$, always. Because if (say) $\frac{1}{2}$ of total income is spent, then the other half $\left(\frac{1}{2}\right)$ of total income must be saved.

Or, if $\frac{3}{4}$ of total income is spent, then $\frac{1}{4}$ of total income must be saved. Simply because, $Y = C + S$.

Algebraically, it can be proved as under:

We know that,

$$APC = \frac{C}{Y}, \text{ and } APS = \frac{S}{Y}$$

We also know that, $Y = C + S$

So that,

$$\begin{aligned} APC + APS &= \frac{C}{Y} + \frac{S}{Y} \\ &= \frac{C+S}{Y} = \frac{Y}{Y} = 1 \end{aligned}$$

Hence, $APC + APS = 1$, always.

(ii) $MPC + MPS = 1$, always. This is because, if (say) $\frac{1}{2}$ of additional income is spent, then the other half $\left(\frac{1}{2}\right)$ of additional income

must be saved. Or, if $\frac{3}{4}$ of additional income is spent, then $\frac{1}{4}$ of additional income must be saved. Simply because, $\Delta Y = \Delta C + \Delta S$.

Algebraically, it can be proved as under:

We know that,

$$MPC = \frac{\Delta C}{\Delta Y}, \text{ and } MPS = \frac{\Delta S}{\Delta Y}$$

We also know that, $\Delta C + \Delta S = \Delta Y$

So that,

$$\begin{aligned} MPC + MPS &= \frac{\Delta C}{\Delta Y} + \frac{\Delta S}{\Delta Y} \\ &= \frac{\Delta C + \Delta S}{\Delta Y} = \frac{\Delta Y}{\Delta Y} = 1 \end{aligned}$$

Hence, $MPC + MPS = 1$, always.

Q. 1. If personal disposable income is ₹ 1,000 crore and consumption expenditure is ₹ 750 crore, find out average propensity to save.

Ans. $S = Y - C = ₹ 1,000 \text{ crore} - ₹ 750 \text{ crore} = ₹ 250 \text{ crore}$

$$\begin{aligned} \text{APS} &= \frac{S}{Y} \\ &= \frac{250}{1,000} \\ &= 0.25 \end{aligned}$$

Q. 2. Can APS ever be negative? If yes, give an example.

Ans. Yes. APS can be negative in situations when S is negative (or when $C > Y$).

Example: $Y = 50, C = 60, S = -10$

$$\begin{aligned} \text{APS} &= \frac{S}{Y} \\ &= \frac{-10}{50} \\ &= -0.2. \end{aligned}$$

Q. 3. APC and MPC are two parameters. The value of which parameter can be greater than one, and when?

Ans. Value of APC can be greater than one. It happens when the level of income is low and $C > Y$. Value of MPC cannot be greater than one. MPC is the ratio between additional consumption and additional income $\left(\frac{\Delta C}{\Delta Y}\right)$. Since additional consumption (ΔC) is only a part of additional income (ΔY), $\frac{\Delta C}{\Delta Y}$ cannot be greater than one.

Q. 4. Can MPS or MPC ever be negative? Give reasons in support of your answer.

Ans. No. Neither MPS nor MPC can ever be negative. Because: MPS is the ratio between additional saving (ΔS) and additional income (ΔY). Likewise, MPC is the ratio between additional consumption (ΔC) and additional income (ΔY). The ratio $\frac{\Delta S}{\Delta Y}$ refers to slope of S-function which is always positive (because of positive relationship between S and Y).

Likewise, the ratio $\frac{\Delta C}{\Delta Y}$ refers to slope of C-function which is always positive (because of positive relationship between C and Y).

Power Points & Revision Window

Aggregate Demand (AD) is the sum total of demand for all goods and services in the economy during the period of an accounting year. It is measured in terms of total (planned) expenditure on the goods and services in the economy during an accounting year.

• **Components:**

$$AD = C + I + G + (X - M)$$

= Planned expenditure on the domestically produced goods and services during an accounting year.

Aggregate Supply (AS) refers to the production of goods and services in the economy as planned by the producers during an accounting year.

It is identical with GDP in the economy where: (i) prices are constant, and (ii) supply responds proportionately to increase in demand, owing to excess capacity. Being identical with GDP, it is indicated by a 45° line.

Consumption Function is the functional relationship between consumption and income. It is specified as under:

$$C = \bar{C} + bY$$

• **Slope of C-line (consumption function)** is the rate at which C (consumption) increases in response to a given increase in Y (income). It is measured as the ratio between additional consumption and additional income.

$$\text{Slope of C-function} = \text{MPC} = \frac{\Delta C}{\Delta Y}$$

Saving Function is the functional relationship between saving and income. It is usually specified as under:

$$S = -\bar{C} + (1 - b)Y$$

• **Slope of S-line (saving function)** is measured as the ratio between additional saving and additional income.

$$\text{Slope of S-function} = \text{MPS} = \frac{\Delta S}{\Delta Y}$$

Average Propensity to Consume is the ratio between total consumption and total income.

$$\text{APC} = \frac{C}{Y}$$

• **Average Propensity to Save** is the ratio between total saving and total income.

$$\text{APS} = \frac{S}{Y}$$

Relationship between Propensity to Consume and Propensity to Save

• $\left. \begin{array}{l} \text{APC} + \text{APS} = 1 \\ \& \\ \text{MPC} + \text{MPS} = 1 \end{array} \right\}$ always

EXERCISE

1. Objective Type Questions (Remembering & Understanding based Questions)

A. Multiple Choice Questions

Choose the correct option:

- AD refers to:
 - demand for all goods and services produced in the economy during a period of one year
 - total unplanned expenditure on the goods and services in the economy during an accounting year
 - sum total of investment expenditure and saving in the economy during an accounting year
 - all of these
- In an open economy, aggregate demand is estimated as:
 - Private consumption expenditure
 - Private consumption expenditure + Government expenditure
 - Private investment expenditure + Private consumption expenditure + Government expenditure
 - Private consumption expenditure + Private investment expenditure + Government expenditure + Net exports
- Consumption function is a functional relationship between:
 - income and saving
 - price and consumption
 - consumption and income
 - consumption and saving
- Average propensity to consume is equal to:
 - $\frac{Y}{C}$
 - $\frac{\Delta Y}{\Delta C}$
 - $\frac{C}{Y}$
 - $\frac{\Delta C}{\Delta Y}$
- Marginal propensity to consume is equal to:
 - $\frac{\Delta Y}{\Delta C}$
 - $\frac{Y}{C}$
 - $\frac{\Delta C}{\Delta Y}$
 - $\frac{C}{Y}$
- MPC being equal to 0.5, what will be ΔC , if income increases by ₹ 100?
 - ₹ 60
 - ₹ 50
 - ₹ 40
 - ₹ 70
- If $C = 450$ and $Y = 1,000$, the average propensity to consume will be:
 - 750
 - 0.75
 - 450
 - 0.45
- When S changes from -30 to -20 , then ΔS is equal to:
 - -10
 - $+10$
 - -20
 - -30

9. Saving function is the functional relationship between:
 (a) income and consumption (b) price and saving
 (c) saving and income (d) consumption and saving
10. In the consumption function, $C = \bar{C} + bY$, the term \bar{C} refers to:
 (a) value of C when $Y = 0$ (b) value of C when $Y = C$
 (c) value of C when Y changes (d) value of C when Y is constant
11. Average propensity to save is equal to:
 (a) $\frac{\Delta Y}{\Delta S}$ (b) $\frac{Y}{S}$
 (c) $\frac{\Delta S}{\Delta Y}$ (d) $\frac{S}{Y}$
12. If MPS is 0.6, what will be ΔS when income increases by ₹ 50?
 (a) ₹ 30 (b) ₹ 20
 (c) ₹ 25 (d) ₹ 35
13. If MPC is 40 per cent, MPS will be:
 (a) 70 per cent (b) 60 per cent
 (c) 50 per cent (d) 40 per cent
14. If consumption function is $C = bY$, what will be the saving function?
 (a) $S = -\bar{C} + bY$ (b) $S = (1 - b)Y$
 (c) $S = -\bar{C} + (1 - b)Y$ (d) $S = -bY$
15. Which of the following is correct?
 (a) $MPC + MPS = 1$ (b) $1 - MPC = MPS$
 (c) $1 - MPS = MPC$ (d) All of these
16. If $MPC = 0.4$ and $\Delta Y = ₹ 1,000$, what will be ΔS ?
 (a) ₹ 400 (b) ₹ 500
 (c) ₹ 600 (d) ₹ 250
17. The slope of S-line is indicated by:
 (a) MPC (b) MPS
 (c) $1 - MPC$ (d) both (b) and (c)
18. When $C = 100 + 0.5Y$ and $Y = 1,200$, autonomous consumption will be:
 (a) 100 (b) 1,000
 (c) 500 (d) 600
19. When $C = 300 + 0.8Y$ and $Y = 500$, saving at zero income level will be:
 (a) 300 (b) -300
 (c) 1,100 (d) 800
20. Break-even point occurs when:
 (a) $Y = S$ (b) $S = 0$
 (c) $Y = C$ (d) both (b) and (c)

Answers

1. (a) 2. (d) 3. (c) 4. (c) 5. (c) 6. (b) 7. (d) 8. (b) 9. (c) 10. (a)
 11. (d) 12. (a) 13. (b) 14. (b) 15. (d) 16. (c) 17. (d) 18. (a) 19. (b) 20. (d)

B. Fill in the Blanks

Choose appropriate word and fill in the blank:

1. In the context of macroeconomic equilibrium, AD always refers to _____ .
(ex-ante AD/ex-post AD)
2. AD is always expressed as what people _____ at different levels of income.
(wish to spend/actually spend)
3. A two sector closed economy includes household sector and _____ sector.
(producer/government)
4. _____ implies planned output in the economy during an accounting year. (AD/AS)
5. Slope of C-line indicates the proportion of _____ that goes to consumption.
(income/additional income)
6. In a two sector closed economy, if consumption is equal to income, average propensity to save will be _____.
(zero/one)
7. A straight line C-line means that the consumption function is _____. (linear/non-linear)
8. When S-line crosses the X-axis, it indicates that S is _____. (zero/negative)
9. _____ shows saving per unit of additional income. (APS/MPS)
10. Constant term in the consumption function refers to _____ consumption.
(autonomous/induced)

Answers

1. ex-ante AD 2. wish to spend 3. producer 4. AS 5. additional income
6. zero 7. linear 8. zero 9. MPS 10. autonomous

C. True or False

State whether the following statements are True or False:

1. Aggregate demand is negatively related to income. (True/False)
2. Collective consumption expenditure refers to consumption expenditure on behalf of the society as a whole. (True/False)
3. AD is measured with reference to the level of income of the people. (True/False)
4. In Keynesian model, price has a major role to play as a determinant of AS. (True/False)
5. Income is either consumed or invested. (True/False)
6. APC is the ratio between total consumption and total income. (True/False)
7. Slope of S-function is indicated by APS. (True/False)
8. If MPS is 45%, then MPC will be 55%. (True/False)
9. In saving function $-50 + 0.5Y$, the value of autonomous consumption will be -50 . (True/False)
10. In a two sector closed economy, if income is zero, APC will also zero. (True/False)

Answers

1. False 2. True 3. True 4. False 5. False 6. True 7. False 8. True 9. False 10. False

D. Matching the Correct Statements

I. From the set of statements given in Column I and Column II, choose the correct pair of statements:

Column I	Column II
(a) Aggregate demand	(i) A flow concept
(b) Imports	(ii) Decreases AD in the domestic economy
(c) APC	(iii) Slope of C-line
(d) Aggregate supply	(iv) Actual production
(e) APS	(v) Can be greater than one

Answer

(b) Imports—(ii) Decreases AD in the domestic economy

II. Identify the correct sequence of alternatives given in Column II by matching them with respective items in Column I:

Column I	Column II
(a) AD curve	(i) Income – Consumption
(b) Saving	(ii) $\frac{\Delta C}{\Delta Y}$
(c) Net exports	(iii) Saving is zero
(d) MPC	(iv) Diagrammatic presentation of AD schedule
(e) $Y = C$	(v) Exports – Imports

Answers

(a)—(iv), (b)—(ii), (c)—(v), (d)—(iii), (e)—(i)

E. 'Very Short Answer' Objective Type Questions

1. What is aggregate demand?

Ans. Aggregate demand is the total demand for goods and services in an economy, measured in terms of total expenditure.

2. Name the principal components of aggregate demand in an open economy.

Ans. The principal components of aggregate demand are: (i) Private consumption expenditure, (ii) Private investment expenditure, (iii) Government expenditure, and (iv) Net exports.

$$AD = C + I + G + (X - M)$$

3. Define aggregate demand schedule.

Ans. Aggregate demand schedule is a table showing AD (or aggregate expenditure) corresponding to different levels of income in the economy.

4. Define aggregate demand curve.

Ans. Aggregate demand (AD) curve is diagrammatic presentation of AD schedule, showing AD corresponding to different levels of Y (income) in the economy.

5. What is consumption function?

Ans. Consumption function refers to the functional relationship between consumption (C) and income (Y).

$$C = \bar{C} + bY$$

6. What is meant by autonomous consumption?

Ans. Autonomous consumption refers to minimum level of consumption, even when income is zero.

7. What is a linear consumption function?

Ans. Linear consumption function is a straight line consumption function in which MPC remains constant.

8. What is break-even point?

Ans. The point where total consumption is equal to the total income or the point where total saving is equal to zero is called break-even point.

9. Define propensity to consume.

Ans. Propensity to consume refers to the proportion of income used as consumption expenditure. It is measured as the ratio between C and Y.

10. What is average propensity to consume?

Ans. Average propensity to consume is the ratio of aggregate consumption expenditure to aggregate income.

$$APC = \frac{C}{Y}$$

11. Define marginal propensity to consume.

Ans. Marginal propensity to consume is the ratio of change in consumption to change in income.

$$MPC = \frac{\Delta C}{\Delta Y}$$

12. What is meant by saving function?

Ans. Saving function refers to the functional relationship between saving (S) and income (Y).

$$S = -\bar{C} + (1 - b)Y$$

13. Define propensity to save.

Ans. Propensity to save refers to the proportion of income which is kept as saving. It is measured as the ratio between S and Y.

14. What is average propensity to save?

Ans. Average propensity to save is the ratio of aggregate saving to aggregate income.

$$APS = \frac{S}{Y}$$

15. Define marginal propensity to save.

Ans. Marginal propensity to save is the ratio of change in saving to change in income.

$$MPS = \frac{\Delta S}{\Delta Y}$$

16. Why cannot the value of marginal propensity to consume be greater than one?

Ans. It is because change in consumption cannot be greater than change in income.

17. What is the relationship between marginal propensity to save and marginal propensity to consume?

Ans. Aggregate of marginal propensity to save and marginal propensity to consume is equal to one or $MPS + MPC = 1$.

18. What is the value of marginal propensity to consume when marginal propensity to save is zero?

Ans. Value of marginal propensity to consume is 1 when marginal propensity to save is zero.

19. The disposable income is ₹ 1,000 crore and level of consumption is ₹ 800 crore. Calculate average propensity to consume.

Ans. Average propensity to consume = $\frac{800}{1,000} = 0.8$.

20. If average propensity to save is 0.6, how much will be average propensity to consume?

Ans. Average propensity to consume will be 0.4, as $APC + APS = 1$.

21. If average propensity to consume is 0.7, how much will be average propensity to save?

Ans. Average propensity to save will be 0.3, since $APC + APS = 1$.

22. How much is the marginal propensity to consume in an economy in which marginal propensity to save is 0.2?

Ans. Marginal propensity to consume would be 0.8, since $MPC + MPS = 1$.

23. How much is the marginal propensity to save in an economy in which the marginal propensity to consume is 0.75?

Ans. Marginal propensity to save would be 0.25, since $MPC + MPS = 1$.

2. Reason-based Questions (Comprehension of the Subject-matter)

Read the following statements carefully. Write True or False with a reason.

1. MPC is the ratio between desired consumption and income, not the actual consumption and income.

Ans. True. MPC reflects what people wish to consume at different levels of income.

2. C is positively related to Y, but C is not zero when Y is zero.

Ans. True. C is positively related to Y, but C is not zero when Y is zero. Because, there is always some minimum level of C irrespective of level of Y.

3. C can exceed Y, but S cannot.

Ans. True. Because there is always some minimum level of C even when the level of Y is zero.

4. AD does not include exports.

Ans. False. AD includes exports. Because exports refer to demand for the domestically produced goods in rest of the world.

5. Consumption never exceeds income.

Ans. False. Consumption can be greater than income. There is always some minimum level of consumption even when income is zero.

6. Saving can never be negative.

Ans. False. Saving can be negative when consumption is greater than income. Negative saving amounts to borrowing.

7. Break-even point is struck when $S = 0$.

Ans. True. Break-even point is struck when $S = 0$. At break-even point, $C = Y$.

8. Average propensity to consume can never be greater than one.

Ans. False. Average propensity to consume can be greater than one when consumption is greater than income.

9. APC and MPC are never equal.

Ans. False. APC and MPC can be equal. When APC is constant, APC will be equal to MPC.

10. $APC + APS = 1$.

Ans. True. We know that,

$$Y = C + S$$

$$\frac{Y}{Y} = \frac{C}{Y} + \frac{S}{Y}$$

[Dividing both sides by Y]

$$1 = \frac{C}{Y} + \frac{S}{Y}$$

⇒

$$APC + APS = 1$$

11. $MPC + MPS > 1$.

Ans. False. $MPC + MPS = 1$, it can never be greater than or less than 1.

12. The rate at which C increases always tends to be lower than the rate at which Y increases.

Ans. True. The rate at which consumption (C) increases is often less than the rate at which income (Y) increases. This is in accordance with the Psychological Law of Consumption.

13. The rate at which S increases always tends to be greater than the rate at which Y increases.

Ans. False. Because any increase in Y is split into two parts: (i) increase in C, and (ii) increase in S. Accordingly, the rate at which S increases (or C increases) must be lower than the rate at which Y increases.

14. The value of marginal propensity to save is always positive.

Ans. True. Marginal propensity to save is the ratio between additional saving and additional income which is always positive because of positive relationship between saving and income.

15. Average propensity to save is never negative.

Ans. False. Average propensity to save can be negative. It is negative in situations when saving is negative or when consumption is greater than income.

16. Value of average propensity to save is always greater than zero.

Ans. False. The value of average propensity to save (APS) can be less than zero. It happens when consumption is greater than income or when $APC > 1$.

17. Negative value of average propensity to save always implies negative value of marginal propensity to save.

Ans. No, it is not true. The value of average propensity to save is negative when consumption is greater than income but this does not mean that marginal propensity to save (MPS) will also be negative. In fact MPS is never negative. Because it is the ratio between ΔS and ΔY and ΔS can never be negative, as a component of ΔY .

18. $APC + MPC = 1$.

Ans. False. Because, whereas APC is the ratio between total consumption and total income, MPC is the ratio between additional consumption and additional income.

19. Average propensity to save is always less than 1.

Ans. True. The value of average propensity to save (APS) is always less than 1. Because a part of income (Y) must be consumed (C cannot be zero). Implying that only a part of Y is saved. Consequently, APS must always be less than 1.

3. HOTS & Applications

1. Do you agree that MPS cannot be negative, but APS can be?

Ans. Given the fact that there is a positive relationship between saving and income, an increase in income must cause an increase in saving. Implying that MPS must always be positive. However, APS can be negative when at a very low level of income consumption is greater than income so that saving is negative.

2. The sum total of APC and APS is always equal to one, even when $APC > 1$. Is it true?

Ans. Yes. $APC + APS = 1$, even when $APC > 1$. Because consumption and saving are the only two components of income.

3. Do you think higher the level of Y, higher should be the level of autonomous consumption in C-function?

Ans. This is not correct because autonomous consumption is not related to the level of Y.

4. Increase in MPC implies increase in the slope of C-function. Comment.

Ans. The given statement is correct. Because MPC shows the rate at which consumption increases in response to increase in income. Or, MPC is the slope of C-function.

5. If APC is constant, C and Y should also be constant. Defend or refute.

Ans. Constant APC only implies that the ratio $\frac{C}{Y}$ is constant. Hence, the above statement is incorrect.

6. What is aggregate demand? How it is different from market demand?

Ans. Aggregate demand refers to demand for all goods and services in the economy. It is measured in terms of total expenditure on goods and services produced in the economy during an accounting year. Whereas market demand is the sum total of demand for one commodity by all the buyers in the market.

Market demand is a micro concept while aggregate demand is a macro concept.

7. Complete the following table:

Income	Saving	Marginal Propensity to Consume	Average Propensity to Consume
0	-20	—	—
50	-10	—	—
100	0	—	—
150	30	—	—
200	60	—	—

Ans.

Income (Y)	Saving (S)	Consumption (C) = Y - S	Marginal Propensity to Consume (MPC) = $\frac{\Delta C}{\Delta Y}$	Average Propensity to Consume (APC) = $\frac{C}{Y}$
0	-20	20	—	—
50	-10	60	$\frac{40}{50} = 0.8$	$\frac{60}{50} = 1.2$
100	0	100	$\frac{40}{50} = 0.8$	$\frac{100}{100} = 1$
150	30	120	$\frac{20}{50} = 0.4$	$\frac{120}{150} = 0.8$
200	60	140	$\frac{20}{50} = 0.4$	$\frac{140}{200} = 0.7$

8. Complete the following table:

Income	Consumption	Marginal Propensity to Save	Average Propensity to Consume
0	15	—	—
50	50	—	—
100	85	—	—
150	120	—	—

Ans.

Income (Y)	Consumption (C)	Saving (S) = Y - C	Change in Saving (ΔS)	Marginal Propensity to Save (MPS) = $\frac{\Delta S}{\Delta Y}$	Average Propensity to Consume (APC) = $\frac{C}{Y}$
0	15	-15	—	—	—
50	50	0	15	$\frac{15}{50} = 0.3$	$\frac{50}{50} = 1$
100	85	15	15	$\frac{15}{50} = 0.3$	$\frac{85}{100} = 0.85$
150	120	30	15	$\frac{15}{50} = 0.3$	$\frac{120}{150} = 0.8$

9. Complete the following table:

Income	Marginal Propensity to Consume	Saving	Average Propensity to Consume
0	—	-30	—
100	0.75	—	—
200	0.75	—	—
300	0.75	—	—

Ans.

Income (Y)	Marginal Propensity to Consume (MPC)	Saving (S) = Y - C	Consumption (C)	Average Propensity to Consume (APC) = $\frac{C}{Y}$
0	—	-30	30	—
100	0.75	-5	105	$\frac{105}{100} = 1.05$
200	0.75	20	180	$\frac{180}{200} = 0.9$
300	0.75	45	255	$\frac{255}{300} = 0.85$

[Hint: $C = \bar{C} + MPC (Y)$; where, $\bar{C} = 30$ at $Y = 0$ and $MPC = 0.75$.]

10. Given below is the consumption function in an economy:

$$C = 100 + 0.5Y$$

With the help of a numerical example show that in this economy as income increases APC will decrease.

Ans. Given consumption function is,

$$C = 100 + 0.5Y$$

When $Y = 0$,

$$C = 100$$

Now assume $Y_1 = 1,500$ and $Y_2 = 2,000$

When $Y = Y_1 = 1,500$

$$C = 100 + 0.5 (1,500)$$

$$= 100 + 750 = 850$$

$$APC = \frac{C}{Y}$$

$$= \frac{850}{1,500} = 0.57$$

When $Y = Y_2 = 2,000$

$$\begin{aligned}C &= 100 + 0.5 (2,000) \\ &= 100 + 1,000 \\ &= 1,100 \\ \text{APC} &= \frac{C}{Y} = \frac{1,100}{2,000} = 0.55\end{aligned}$$

We find that as income in the economy increases, APC will decrease.

11. Find autonomous consumption and total consumption when saving function is $S = -100 + 0.5Y$ and $Y = 1,500$.

Ans. Given,

$$\begin{aligned}S &= -100 + 0.5Y \\ \text{Autonomous consumption} &= \bar{C} = -(-) 100 = 100 \\ C &= \bar{C} + \text{MPC} (Y) \\ &= 100 + (1 - 0.5) 1,500 \quad [\text{MPC} = 1 - \text{MPS} \text{ and } \text{MPS} = 0.5] \\ &= 100 + 0.5 (1,500) \\ &= 100 + 750 \\ &= 850\end{aligned}$$

Autonomous consumption = 100.

Total consumption = 850.

12. Find consumption and saving when $\bar{C} = 100$, $\text{MPC} = 0.5$ and $Y = 2,000$. Is there greater increase in income as compared to consumption when income changes to 2,500?

Ans. We know that,

$$\begin{aligned}C &= \bar{C} + \text{MPC} (Y) \\ \text{When } Y &= 2,000, \\ C &= 100 + 0.5 (2,000) \\ &= 100 + 1,000 \\ &= 1,100\end{aligned}$$

We also know that,

$$\begin{aligned}\text{Or, } Y &= C + S \\ S &= Y - C \\ &= 2,000 - 1,100 \\ &= 900\end{aligned}$$

$$\begin{aligned}\therefore \text{Consumption} &= 1,100 \\ \text{Saving} &= 900\end{aligned}$$

When $Y = 2,500$

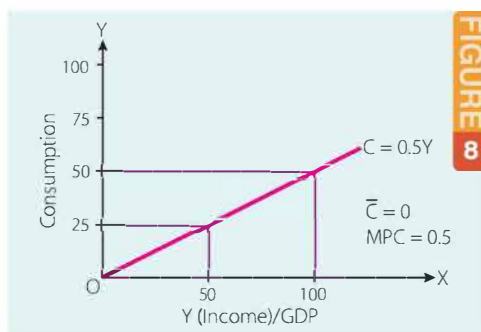
$$\begin{aligned}C &= 100 + 0.5 (2,500) \\ &= 100 + 1,250 \\ &= 1,350 \\ \text{Change in } C &= 1,350 - 1,100 = 250 \\ \text{Change in } Y &= 2,500 - 2,000 = 500\end{aligned}$$

Yes, the increase in income is greater than the increase in consumption when Y increases from 2,000 to 2,500.

13. At what rate consumption is increasing in the economy when $MPS = 0.5$, and autonomous consumption is zero? Draw a diagram.

Ans. $MPC + MPS = 1$
 $MPC = 1 - MPS$
 $= 1 - 0.5$
 $= 0.5$

$MPC (0.5)$ indicates the rate at which consumption increases in response to increase in income.



Note:

At every level of Y , $C = 0.5Y$ or $C = \frac{1}{2}Y$. Thus, when $Y = 50$, $C = 25$; when $Y = 100$, $C = 50$. Accordingly, $\frac{\Delta C}{\Delta Y} (= 0.5)$ is constant, as indicated by a straight line C -function.

14. Find change in savings when $2/3$ rd of income is always spent as consumption expenditure and current income is 50% more than the initial income of ₹ 50,000.

Ans. Current income = 50% of ₹ 50,000 + ₹ 50,000
 $= ₹ 25,000 + ₹ 50,000$
 $= ₹ 75,000$
 Initial income = ₹ 50,000
 Change in income (ΔY) = ₹ 75,000 – ₹ 50,000
 $= ₹ 25,000$

$$MPC = \frac{2}{3}$$

$$MPS = 1 - MPC$$

$$= 1 - \frac{2}{3} = \frac{1}{3}$$

We know,

$$\Rightarrow \frac{1}{3} = \frac{\Delta S}{25,000}$$

$$\Rightarrow \Delta S = \frac{25,000}{3} = ₹ 8,333.33$$

Alternative Method:

$$Y = C + S$$

Consumption expenditure = $\frac{2}{3}$ of income
 Savings = $\frac{1}{3}$ of income
 Initial savings = $\frac{1}{3} \times ₹ 50,000 = ₹ 16,666.67$
 Current savings = $\frac{1}{3} \times ₹ 75,000$
 $= ₹ 25,000$
 Change in savings = ₹ 25,000 – ₹ 16,666.67
 $= ₹ 8,333.33$

15. Complete the following table:

Income (₹)	Average Propensity to Consume	Saving (₹)	Marginal Propensity to Consume
0	—	-80	—
100	1.6	—	—
200	1	—	—
300	0.8	—	—

Ans.

Income (Y) (₹)	Average Propensity to Consume (APC)	Consumption (C) (₹)	Saving (S) = Y - C (₹)	Marginal Propensity to Consume (MPC) = $\frac{\Delta C}{\Delta Y}$
0	—	80	-80	—
100	1.6	160	-60	$\frac{80}{100} = 0.8$
200	1	200	0	$\frac{40}{100} = 0.4$
300	0.8	240	60	$\frac{40}{100} = 0.4$

[Hint: $APC = \frac{C}{Y} \Rightarrow C = APC \times Y$]

16. The exports fall 15% to 1718.07 cr. in first 6 months of FY 15.

[Business Standard]

How will this affect aggregate demand in the economy?

Ans. Fall in exports would be reflected as a fall in aggregate demand. Because, exports are a component of aggregate demand.

17. Do you think increase in MPS should be beneficial to the growth of GDP in India?

Ans. Increase in MPS implies that people start saving more when their income rises. This is good for the GDP growth, provided people put their savings in the banks and the banks are able to convert savings into investment (by way of loans to the investors). However, in countries like India where banking habits of the people are yet not grown, savings may remain as idle cash balances with the people. Implying that additional income of the people is not converted into additional demand. This may cause deficiency of AD. Deficient AD may lead to economic slowdown (state of recession in the economy).

4. Analysis & Evaluation

1. Why should rising MPS be a cause of worry when it is a sign of rising GDP in the economy?

Ans. Rising MPS implies falling MPC, as $MPS + MPC = 1$. It indicates that lesser and lesser proportion of the additional income goes to consumption expenditure. Implying a gradual shrinkage of AD (aggregate demand) in relation to Y (income). In such a situation, the economy might slip into a state of recession or economic slowdown.

2. In India propensity to consume is fairly high. Why is it that the manufacturing sector in India shows a low rate of growth because of low demand?

Ans. High propensity to consume in India is primarily because of low income of the people. When income is low, the bulk of it is used as expenditure on food and allied items. Having spent the bulk of their income on food (and related items), the people have limited capacity to buy manufactured goods. Thus, demand for manufactured goods remains low. Which is why, manufacturing sector shows a low rate of growth.

5. CBSE Questions—Past 5 years (With Answers or Reference to the Text for Answers)

1. What is 'aggregate supply' in macroeconomics? [CBSE Delhi 2015]

Or

Define aggregate supply. [CBSE 2018]
[Page 181]
2. What is 'aggregate demand' in macroeconomics? [CBSE (AI) 2015]
[Page 178]
3. Name any two components of 'aggregate demand'. [CBSE (F) 2015]
[Page 180, 181]
4. Distinguish between marginal propensity to consume and average propensity to consume. Give a numerical example. [CBSE Delhi 2016]

Or

Distinguish between average propensity to consume and marginal propensity to consume using a numerical example. [CBSE (F) 2016]
[Page 186]
5. Given consumption curve, derive saving curve and state the steps taken in the process of derivation. Use diagram. [CBSE Delhi 2016]

Or

Given a consumption curve, outline the steps required to be taken in deriving a saving curve from it. Use diagram. [CBSE (AI) 2017]
[Page 192, 193]
6. What is aggregate demand? State its components. [CBSE (AI) 2016]
[Page 178, 180, 181]
7. Given saving curve, derive consumption curve and state the steps in doing so. Use diagram. [CBSE (AI) 2016]
[Page 212]
8. Define marginal propensity to consume. [CBSE (AI) 2017]
[Page 186]
9. Define marginal propensity to save. [CBSE (AI) 2017]
[Page 190]
10. Suppose in a hypothetical economy, the income rises from ₹ 5,000 crore to ₹ 6,000 crore. As a result, the consumption expenditure rises from ₹ 4,000 crore to ₹ 4,600 crore. Marginal propensity to consume in such a case would be . (Choose the correct alternative) [CBSE 2019 (58/1/1)]
(a) 0.8 (b) 0.4
(c) 0.2 (d) 0.6
[(d)]
11. State and discuss the components of aggregate demand in a two sector economy. [CBSE 2019 (58/1/1)]
[Page 180]
12. State the meaning of autonomous consumption. [CBSE 2019 (58/2/1)]
[Page 183]

13. If marginal propensity to save is 20% and is constant at all levels of income and the autonomous consumption is ₹ 100 crore, construct consumption function of the given hypothetical economy. [Page 443] [CBSE 2019 (58/3/1)]
14. If marginal propensity to save is 10% and is constant at all levels of income, and the autonomous consumption is ₹ 200 crore, construct consumption function of the given hypothetical economy. [Page 443, 444] [CBSE 2019 (58/3/2)]
15. If marginal propensity to consume is 80% and is constant at all levels of income, and the autonomous consumption is ₹ 400 crore, construct consumption function of the given hypothetical economy. [Page 444] [CBSE 2019 (58/3/3)]
16. State the following statement as true or false. Give valid reasons.
In a two-sector economy, if consumption is equal to income, average propensity to save will be zero. [CBSE 2019 (58/3/1)]
[True. We know that, $Y = C + S$
When $C = Y$, S will be zero. Thus, $APS = \frac{S}{Y} = \frac{0}{Y} = 0$]
17. State the following statement as true or false. Give valid reasons.
In a two-sector economy, if income is zero, consumption will also be zero. [CBSE 2019 (58/3/2)]
[False. If income is zero, consumption will not be zero. Because, there is always some minimum level of consumption (autonomous consumption) in the economy even when income level is zero. A minimum consumption is always required for survival, no matter what the level of income is.]
18. State the following statement as true or false. Give valid reasons.
In a two-sector economy, if income is zero, average propensity to consume will also zero. [CBSE 2019 (58/3/3)]
[False. If income is zero, average propensity to consume will not be zero. Because, there is always some minimum level of consumption (autonomous consumption) in the economy even when income level is zero. Thus, $APC \left(= \frac{C}{Y} \right) = \frac{C}{0}$ (any positive value) will not be zero. Rather it would tend towards infinity.]
19. Which of the two, average propensity to consume or average propensity to save, can be negative and why? [CBSE 2019 (58/4/1)]
[Page 195]
20. The consumption function of an economy is: $C = 40 + 0.8Y$ (amount in ₹ crore). Determine that level of income where average propensity to consume will be one. [CBSE 2019 (58/4/1)]
[Page 444]

6. NCERT Questions (With Hints to Answers)

1. What is marginal propensity to consume? How is it related to marginal propensity to save?
[Hint: Marginal propensity to consume is the ratio of change in consumption to change in income.]

$$MPC = \frac{\Delta C}{\Delta Y}$$

Marginal propensity to save is the ratio of change in saving to change in income.

$$MPS = \frac{\Delta S}{\Delta Y}$$

$$MPC + MPS = 1$$

$$MPS = 1 - MPC.]$$

7. Miscellaneous Questions and Reference to the Text for Answers

A. Questions of 3 & 4 marks each

1. Define aggregate demand. State its components. [Page 178, 180, 181]
2. Explain the concept of consumption function. [Page 183–185]
3. Explain the concept of saving function. [Page 188, 189]
4. Distinguish between average propensity to consume and marginal propensity to consume. The value of which of these two can be greater than one and when? [Page 186, 195]
5. Distinguish between average propensity to save and marginal propensity to save. The value of which of these two can be negative and when? [Page 190, 195]
6. What is the relationship between average propensity to consume and average propensity to save? Can the value of APS be negative? If yes, when? [Page 194, 195]
7. Explain the relationship between marginal propensity to consume and marginal propensity to save. [Page 194]
8. Write an equation for a straight line upward rising consumption function, starting from the Y-axis. Also, draw the diagram. [Page 183–187]

B. Questions of 6 marks each

1. Explain the concept of AD using a suitable schedule and diagram. [Page 177–179]
2. What is consumption function? Illustrate its behaviour using a suitable diagram.
Or
Explain 'consumption function' with the help of a diagram. [Page 183–185]
3. What is meant by propensity to consume? Explain its different aspects. [Page 193, 194]
4. What is meant by saving function? Explain it with the help of a diagram.
Or
Explain 'saving function' with the help of a diagram. [Page 188, 189]
5. Draw a diagram showing straight line consumption function. From it, how would you derive a saving function? Explain diagrammatically, taking some hypothetical figures. [Page 192, 193]
6. Given a straight line saving curve, draw the consumption curve. Explain the process of its derivation. Also show (i) the income level where $C = Y$, and (ii) the income level where S is negative. [Page 212]

DOs and DON'Ts

1. Remember that S can never be greater than Y . Because, S is only a part of Y . So that $\frac{S}{Y}$ (= APS) can never be greater than 1. However, S can be negative. Implying that APS can be less than zero (or it can be negative).
2. Remember that MPS is the slope of S-function, or S-line. Because S-line has a positive slope, MPS can never be negative. Logically: MPS is the ratio between additional saving and additional income. Additional saving out of additional income can never be negative. Therefore, MPS can never be negative.
Likewise, MPC is the slope of C-function, or C-line. Because C-line has a positive slope, MPC can never be negative.

• Derivation of C-function (C-curve) from S-function (S-curve): Diagrammatic Illustration

We know,

$$C = \bar{C} + bY$$

$$S = -\bar{C} + (1 - b)Y$$

Fig. 9 illustrates the derivation of C-function (C-curve) from S-function (S-curve).

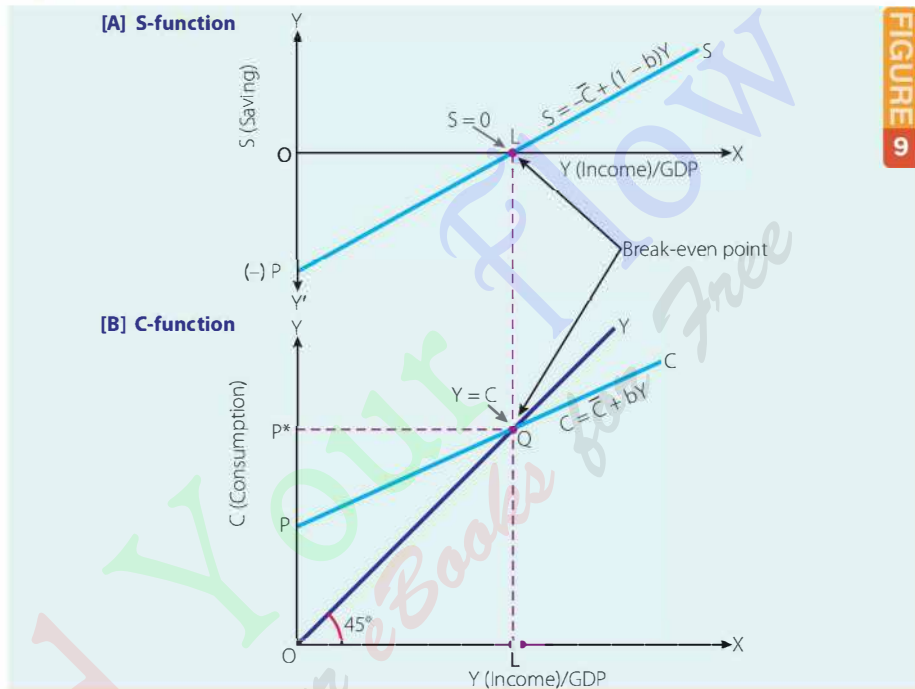


FIGURE 9

C-function [Fig. 9(B)] is derived from S-function [Fig. 9(A)], taking the following steps:

Step 1: $-\bar{C}$ indicates negative saving when $Y = 0$. This is equal to $(-)OP$. Corresponding to it, \bar{C} would be equal to OP (consumption when $Y = 0$).

Thus, P becomes the starting point of C -function (when $Y = 0$).

Step 2: When $S = 0$ [at point L in Fig. 9(A)], $C = OP^*$ [at point Q in Fig. 9(B)]. This corresponds to income level OL in both the figures.

Thus, between O to OL level of Y , $C > Y$.

Step 3: Starting from P and passing through point Q , we stretch the C -function as a straight line. The line shows constant slope ($= b$). This corresponds to the constant slope of S -function $= (1 - b)$.

Note that:

$$b + (1 - b) = 1$$

\uparrow \uparrow
 Slope of C-line Slope of S-line



SHORT RUN EQUILIBRIUM OUTPUT

TO
DO

- *Concept of Short Run*
- *Concept of Equilibrium Output (GDP)*
- *Determination of Equilibrium Output (GDP): AS–AD Approach and S–I Approach*
- *Shift in Equilibrium: Impact of Additional Investment (ΔI)*
- *Investment Multiplier and its Mechanism*

I. CONCEPT OF SHORT RUN

In macroeconomics (and according to **Keynes**), short run is defined as a period of time during which 'technology' plays no role in the determination of output in the economy. It is assumed to remain constant. Output is determined exclusively by the level of employment in the economy. Higher level of employment leads to higher level of output, and *vice versa*.

Technology remaining constant, there is one-to-one relationship between output and employment. Thus, if employment is doubled, output will also be doubled. In other words, the level of employment in the economy measures the level of output (GDP) in the economy. Accordingly, output cannot increase once there is full employment in the economy.

In the context of Keynesian Economics, there is one-to-one relationship between output and employment, as technology is assumed to be constant. Accordingly, output (GDP) cannot increase once there is full employment in the economy.

2. CONCEPT OF EQUILIBRIUM OUTPUT (GDP)

Why is there an equilibrium in the economy when $AS = AD$?

Because in such a situation, intended production in the economy is equal to intended purchase in the economy. The producers do not suffer: (i) the burden of unwanted supplies (or unsold stocks), or (ii) the loss of unfulfilled demand (due to lack of stocks). When $AS = AD$, actual stocks with the producers = desired stocks with the producers.

Equilibrium output (also called equilibrium GDP or equilibrium income) refers to that level of output in the economy where:

$$AS = AD$$

[Aggregate Supply = Aggregate Demand]

We have already learnt in the previous chapter that:

AS refers to the desired level of output in the economy. It is the level of GDP that the producers wish to produce (or plan to produce) during an accounting year (also called ex-ante AS).

AD, on the other hand, refers to the level of GDP that the buyers wish to buy during an accounting year (also called ex-ante AD). The equilibrium GDP means that level of GDP where what the producers wish to produce (or plan to produce) is exactly equal to what the buyers wish to buy (or plan to buy) during an accounting year. So that, there is no excess production (or unwanted stocks with the producers). Or, there is no shortage of output in relation to its demand.

Equality between AS and AD implies the equality between Y and AD. Because $Y = AS$.

Thus, we can write that the equilibrium is struck when:

$$AS = AD$$

or

$$Y = AD$$

[Here, Y denotes income, and $Y = AS$, as already discussed in the previous chapter.]

Equilibrium GDP

Equilibrium GDP implies a situation, when:

$$AS = AD \text{ or } Y = AD$$

In such a state,

Actual stocks of the producers = Required (or Desired) stocks of the producers

In case

$$AS > AD \text{ (or } Y > AD),$$

Actual stocks > Required stocks

The producers suffer losses because of excessive stocks or unsold stock of goods.

In case

$$AS < AD \text{ (or } Y < AD),$$

Actual stocks < Required stocks

The producers suffer losses on account of unfulfilled demand in the economy.

Alternative Approach: Equilibrium is struck when $S = I$

Now, we know that in a simple two sector economy (producer sector and household sector), the equilibrium is struck when:

$$Y = AD$$

Since,

$$Y = C + S, \text{ and}$$

$$AD = C + I \text{ (as discussed in the previous chapter)}$$

The equilibrium equation can be written like this:

$$\begin{array}{ccc} \underline{C + S} & = & \underline{C + I} \\ \downarrow & & \downarrow \\ Y & & AD \end{array}$$

Or that, equilibrium is struck when:

$$S = I \text{ (as } C \text{ is common on both sides of the equation)}$$

You Must Note it

In the context of equilibrium GDP, we should focus only on ex-ante saving and ex-ante investment. Equilibrium is struck when:

$$\text{ex-ante saving (S) = ex-ante investment (I)}$$

Ex-ante Saving: It refers to 'desired saving' or planned saving during the period of one year. These are the savings which people intend to make in the economy during the period of one year.

Ex-ante Investment: It refers to 'desired investment' or planned investment during the period of one year. This is the investment expenditure which is intended to be made in the economy during the period of one year. It does not include unplanned investment.

(Unplanned investment is like unsold stock of goods which is treated as inventory investment. But this is 'undesired inventory'.)

Related concepts are: ex-post saving and ex-post investment.

Ex-post Saving: It refers to 'actual saving' in the economy during the period of one year. This aspect of saving is considered in the context of 'National Income Accounting'.

Ex-post Investment: It refers to 'actual investment' in the economy during the period of one year. Like actual saving, this aspect of investment is considered in the context of 'National Income Accounting'. It includes both planned as well as unplanned investment.

[Note: Equilibrium GDP is struck only when Desired or Planned Saving = Desired or Planned Investment. Equilibrium GDP has nothing to do with actual saving and actual investment.]

3. DETERMINATION OF EQUILIBRIUM OUTPUT (GDP) OR EQUILIBRIUM INCOME

We have two approaches to study the determination of equilibrium output (GDP) or equilibrium income:

- (i) AS = AD approach, and
- (ii) S = I approach.

In what follows, we discuss how equilibrium is determined using each of these approaches:

(i) AS = AD Approach and Equilibrium GDP or Equilibrium Income

According to this approach, equilibrium GDP or equilibrium income is achieved when $AS = AD$. We have already discussed the concepts of AS and AD in the previous chapter. Only a brief description is repeated as required in the context of equilibrium GDP.

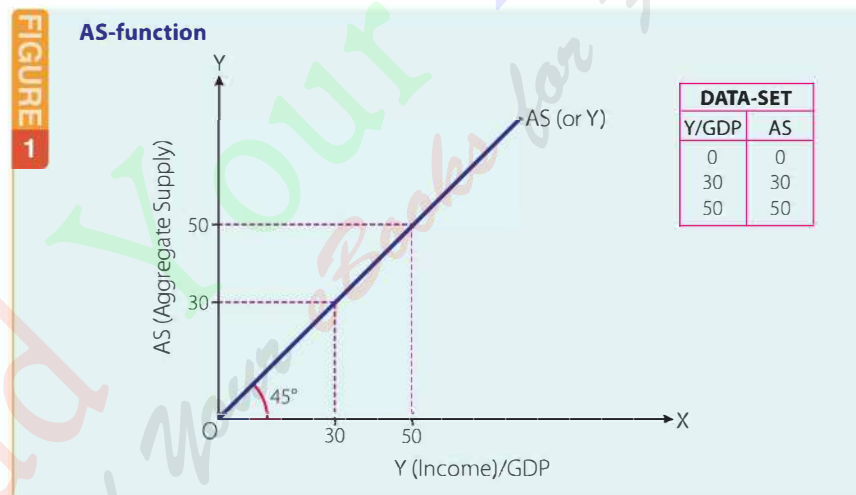
AS

AS refers to planned output in the economy. As described in the previous chapter, it is indicated by a 45° line from the origin. The 45° line indicates that AS and GDP are identical to each other. AS is not related to price, as we are considering an economy where price remains constant. It is an economy with excess capacity where AS responds proportionately to AD and price remains unaffected.

Thus, AS-function is drawn as in Fig 1.

Did You Know it?

That Keynes related his discussion on equilibrium GDP to a situation when there is a severe depression in the economy. In such a situation, there is a lack of AD, and production capacity remains unutilised. The economy would emerge out of the state of depression only when AD rises. AS would automatically respond to AD because there is excess capacity (unutilised capacity). Thus, Keynes considers AD as the principal determinant of equilibrium GDP (as AS is perfectly elastic owing to excess capacity).



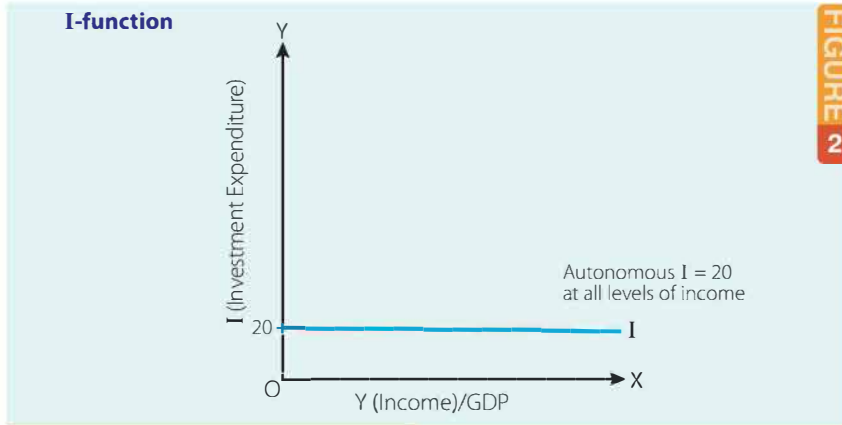
The figure shows that Y (or GDP) and AS are identical to each other. Thus, when $Y = 30$, AS is also = 30. Likewise, when $Y = 50$, AS is also = 50. And so on.

AD

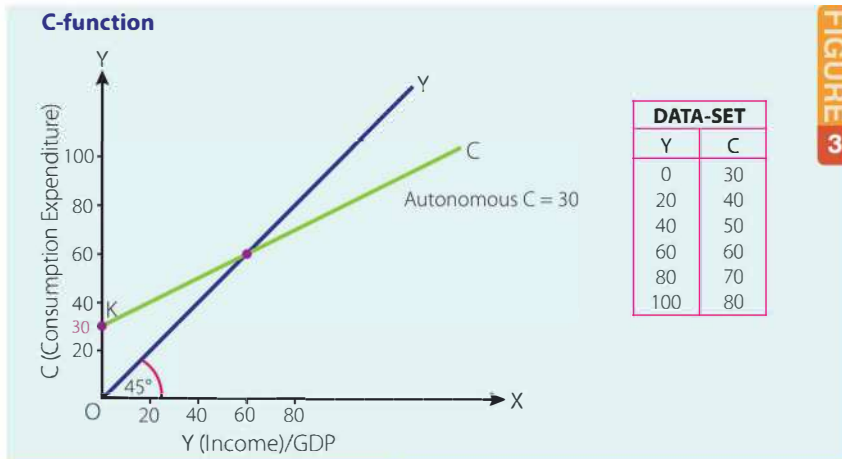
AD refers to desired expenditure (or planned expenditure) in the economy during an accounting year. It has two components: desired consumption expenditure and desired investment expenditure. **Desired investment expenditure is assumed to be autonomous**, so that it is not related to the level of income in the economy.

Desired consumption expenditure is related to the level of income: there is a positive relationship between consumption (C) and income (Y); C rises as income rises. However, there is always some minimum level of C, independent of Y. Thus, C may be 30 when Y = 0. (This is just an assumption that C = 30 when Y = 0.)

Based on this description, I-function, C-function and combined C and I function are drawn as in Fig. 2, Fig. 3 and Fig. 4 respectively. The combined C and I function is called AD-function.

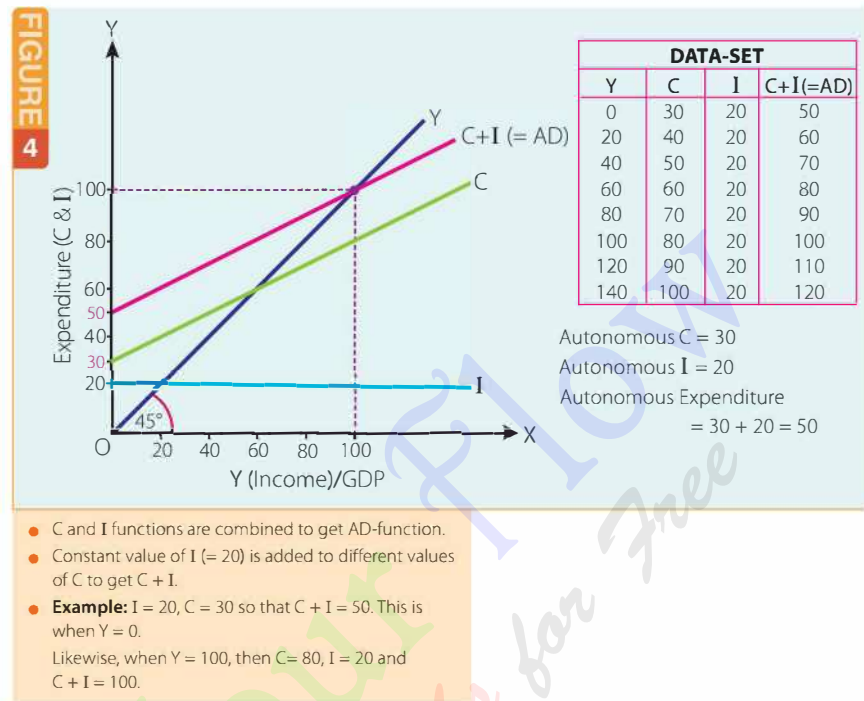


- All investment is treated as autonomous investment. I is not related to Y. So that, I is drawn as a horizontal straight line.



- OK is autonomous consumption (= 30.)
- C rises as Y rises.
- C-function is a straight line, implying that it is a linear function.

C and I Functions Combined (AD-function)



Equilibrium GDP or Equilibrium Income: Tabular Presentation

Table 1 illustrates the equilibrium level of GDP in terms of the equality between aggregate demand and aggregate supply.

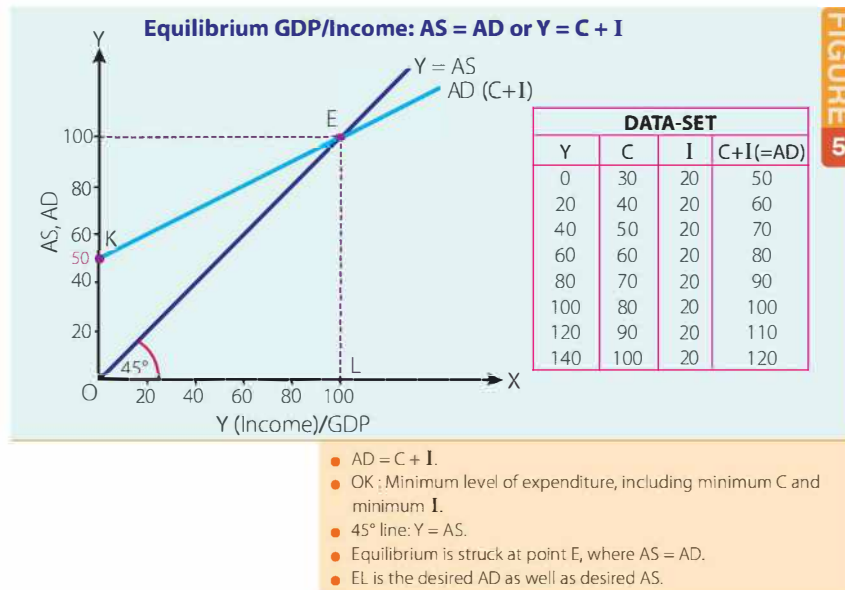
Table 1. Equilibrium GDP in terms of Equality between Aggregate Supply and Aggregate Demand

Income (GDP) Y (₹ crore)	C (₹ crore)	I (₹ crore)	C+ I (= AD) (₹ crore)
0	30	20	50
20	40	20	60
40	50	20	70
60	60	20	80
80	70	20	90
100	80	20	100
120	90	20	110
140	100	20	120

Equilibrium is struck when planned output (AS) = planned expenditure (AD) = ₹ 100 crore. It need not necessarily correspond to full employment.

Equilibrium GDP or Equilibrium Income: Graphic Presentation

Fig. 5 illustrates the equilibrium level of GDP or equilibrium level of income in the economy.



AD-line intersects the 45° AS-line at point E, so that E is the point of equilibrium where $AS = AD$. OL is the equilibrium GDP in the economy. Now, what the producers wish to produce is exactly equal to what the households wish to buy in the economy. Or, that the desired expenditure on output is equal to desired level of output = 100. All output as planned by the producers is purchased by the buyers in the economy. There are no unwanted or undesired stocks with the producers.

HOTS

Q. 1. Find equilibrium Y when: $C = 100 + 0.5Y$ and $I = 1,000$.

Ans. Equilibrium is struck when:

$$Y = AD$$

Or, when $Y = C + I$

Substituting the values of C and I, we get:

$$Y = 100 + 0.5Y + 1,000$$

Or, $Y - 0.5Y = 100 + 1,000$

Or, $0.5Y = 1,100$

$\therefore Y = \frac{1,100}{0.5} = 2,200$.

Q. 2. Find C at equilibrium Y when: $Y = 6,000$ and $C = 100 + 0.75Y$.

Ans. Given, $C = 100 + 0.75Y$

Or, $C = 100 + 0.75(6,000)$

$$= 100 + \frac{75}{100} \times 6,000$$

$$= 100 + 4,500 = 4,600$$

What happens if $AS > AD$?

When AS is more than AD ($AS > AD$), supply of goods and services in the economy tends to exceed their demand. As a result, some of the goods would remain unsold. To clear unwanted stocks, the producers would plan a cut in production. Consequently, AS would reduce to become equal to AD. This is how AS adjusts itself to AD. Briefly, equilibrium is restored through a change in output or a change in Y .

What happens if $AS < AD$?

When AS is less than AD ($AS < AD$), supply of goods and services in the economy tends to be less than their demand. The existing stocks of the producers would be sold out and the producers would suffer the loss of unfulfilled demand. To rebuild the desired stocks and avoid the loss of unfulfilled demand, the producers would plan greater production. AS would increase to become equal to AD. This is how AS converges with AD. Thus, equilibrium is restored through a change in output or a change in Y .

(ii) S and I Approach and Equilibrium GDP or Equilibrium Income

According to this approach, equilibrium GDP or equilibrium income is achieved when $S = I$. We have already discussed S and I functions in the previous chapter. A brief repetition is as under:

S-function

We know, $S = f(Y)$. S is positively related to Y . However at the lower level of income, S can be negative. Because, at lower level of income C may be greater than Y . S becomes negative to the extent $C > Y$. We are considering a straight line S-function called a linear function.

I-function

As regards I-function, we are considering only autonomous I. It is independent of the level of Y . Accordingly, it is a horizontal straight line (shooting from the Y-axis).

Equilibrium GDP/Income: Tabular Presentation

Table 2 shows equilibrium GDP in terms of the equality between S and I.

Table 2. Equilibrium GDP/Income in terms of Equality between S and I

Income (GDP) (Y) (₹ crore)	Consumption (C) (₹ crore)	Saving (S = Y - C) (₹ crore)	Investment (I) (₹ crore)
0	30	-30	20
20	40	-20	20
40	50	-10	20
60	60	0	20
80	70	10	20
100	80	20	20
120	90	30	20
140	100	40	20

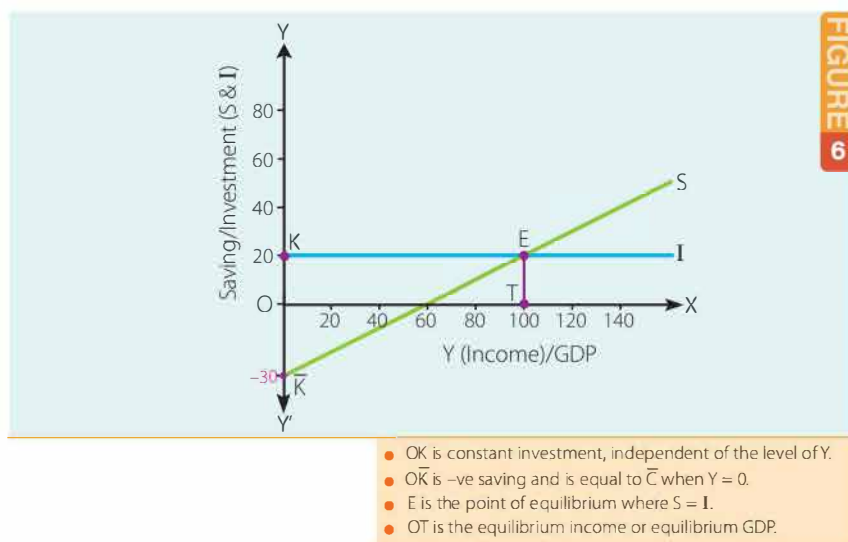
In Table 2, equilibrium is struck when:

$$S = I = ₹20 \text{ crore}$$

Equilibrium Income (GDP) = ₹100 crore.

Equilibrium GDP/Income : Graphic Presentation

Fig. 6 shows S and I functions, and the equilibrium GDP/income.



E is the point of equilibrium where $S = I$.

OT is the equilibrium GDP = 100.

Now, planned expenditure on output (AD) = planned output (AS) in the economy, even when (owing to saving) entire income of the households is not converted into expenditure. This is because loss of expenditure by way of S is equally compensated by the gain of

expenditure by way of I . Income and expenditure being equal (or planned output and expenditure on planned output being equal), there are no unwanted or undesired stocks with the producers. Level of income/GDP is in a state of equilibrium.

What happens if $S > I$?

In case $S > I$, it implies a situation when a fall in expenditure through 'S' is more than the rise in expenditure through 'I'. Accordingly, aggregate expenditure in the economy would be less than what is needed to buy the planned output. Some output would remain unsold, and producers will have undesired stocks. To clear their stocks, the producers would now plan lesser output. Lesser output would mean lesser income. Lesser income would mean lesser saving. The process would continue till $S = I$. Thus, the equality between S and I is restored through change in the level of Y .

What happens if $S < I$?

In case $S < I$, it implies a situation when a fall in expenditure through 'S' is less than the rise in expenditure through 'I'. Accordingly, aggregate expenditure in the economy would be greater than what is required to buy the planned output. It is a situation of higher AD than AS . The producers would suffer the loss of unfulfilled demand. This will prompt the producers to plan higher output. Higher output would mean higher income, and higher income would mean higher saving. The process would continue till $S = I$. Here again, the equality between S and I is restored through change in the level of Y .

Three Basic Assumptions related to Equilibrium GDP

Three basic assumptions of the Keynesian theory must be noted:

- (i) **Short Period Analysis:** Equilibrium GDP according to Keynesian theory is discussed only with reference to short period of time. We have already discussed this assumption in detail in the beginning of the chapter.
- (ii) **Two Sector Closed Economy:** Initially, Keynes discusses the theory of equilibrium GDP in the context of a two sector closed economy. This is an economy which has no economic relations with the rest of the world: there are no exports or imports. Also, there is no government sector, so that taxes and subsidies are ruled out. Accordingly, $AD = C + I$ (when only household sector and producer sector are considered).
- (iii) **AS is Perfectly Elastic:** Keynes assumes that AS is perfectly elastic. It means that we are studying an economy in which there is an 'excess capacity': production capacity is lying idle or there is unemployment of resources. So that, whenever there is a rise in AD , there is a corresponding rise in AS (as excess capacity begins to be utilised). Thus, AS always aligns itself with AD , without causing any change in the price level.

Q. 1. Find equilibrium S and equilibrium I when: $Y = 4,400$, $MPC = 0.75$, and $\bar{C} = 100$.

Ans. Equilibrium is struck when:

$$\begin{aligned}
 Y &= C + I \\
 \text{Or, when} \quad S &= I \\
 \text{C at equilibrium:} \quad C &= \bar{C} + MPC \cdot Y \\
 &= 100 + 0.75 (4,400) \\
 &= 100 + 3,300 = 3,400 \\
 \text{We know,} \quad MPS &= 1 - MPC = 1 - 0.75 = 0.25 \\
 \text{Thus, S at equilibrium:} \quad S &= -100 + 0.25 (4,400) \quad (\text{Note that, } \bar{S} = -\bar{C} = -100) \\
 &= -100 + 1,100 = 1,000
 \end{aligned}$$

Alternatively:

$$\begin{aligned}
 Y &= C + S \\
 S &= Y - C = 4,400 - 3,400 = 1,000 \\
 \text{In equilibrium,} \quad S &= I \\
 \text{We know,} \quad S &= 1,000 \\
 \text{Accordingly,} \quad I &= 1,000
 \end{aligned}$$

Q. 2. Given that, $S = -25 + 0.5Y$ and $I = 5,000$, find equilibrium Y and equilibrium C.

Ans. In equilibrium, $S = I$

So that, $-25 + 0.5Y = 5,000$

Or, $0.5Y = 5,000 + 25 \Rightarrow 0.5Y = 5,025$

$$\therefore Y = \frac{5,025}{0.5} = 10,050$$

S at equilibrium: $S = -25 + 0.5 (10,050)$
 $= -25 + 5,025 = 5,000$

We know, $Y = C + S$

Or, $C = Y - S$

Thus, equilibrium $C = 10,050 - 5,000$
 $= 5,050.$

Q. 3. Given $C = 400 + 0.9Y$ and $I = 4,000$, find: (i) equilibrium Y, (ii) S and C at equilibrium Y.

Ans. Equilibrium Y is found when, $Y = C + I$

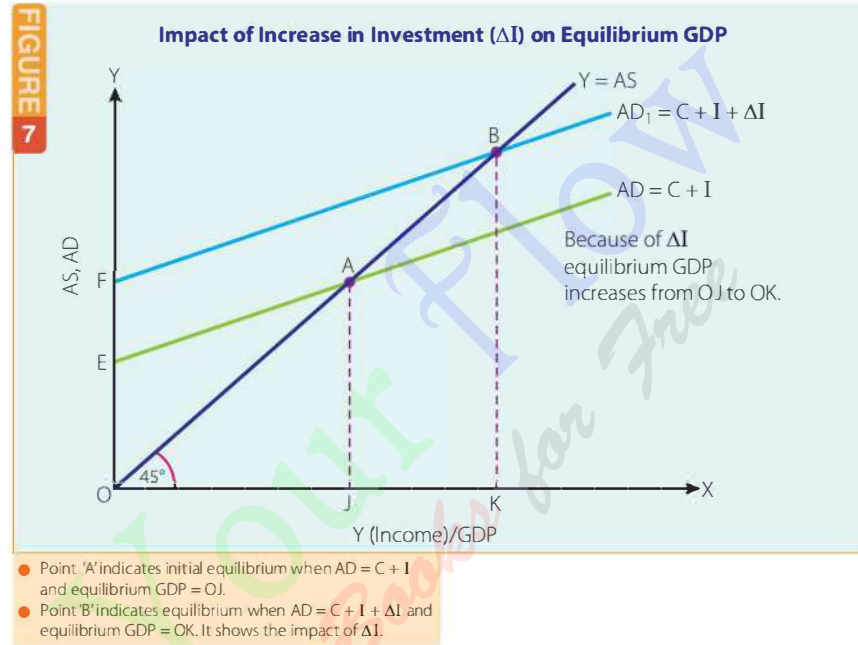
Substituting the values, we get:

$$\begin{aligned}
 Y &= 400 + 0.9Y + 4,000 \\
 \text{Or,} \quad Y - 0.9Y &= 400 + 4,000 \Rightarrow 0.1Y = 4,400 \\
 \text{Thus,} \quad Y &= \frac{4,400}{0.1} = 44,000 \\
 \text{C at equilibrium:} \quad C &= \bar{C} + MPC \cdot Y = 400 + 0.9 (44,000) \\
 &= 400 + 39,600 = 40,000 \\
 \text{S at equilibrium:} \quad S &= -\bar{C} + MPS \cdot Y \\
 &= -400 + 0.1 (44,000) \\
 &= -400 + 4,400 \\
 &= 4,000
 \end{aligned}$$

Alternatively, in equilibrium, $S = I$
 Since $I = 4,000$ (given), S must be equal to 4,000.

4. SHIFT IN EQUILIBRIUM: IMPACT OF ADDITIONAL INVESTMENT (ΔI)

Increase in investment causes increase in the level of AD. Accordingly, AD function shifts upward. Fig. 7 illustrates how it impacts the equilibrium GDP.



OJ is the initial level of equilibrium GDP. Due to additional investment (ΔI), the AD-function shifts upward. It is now indicated by $C + I + \Delta I$. It causes an increase in equilibrium GDP from OJ to OK .

Additional Investment has Multiplier Effect

In Fig. 7, owing to an additional investment (ΔI), level of income increases from OJ to OK . Increase in income = JK . Compare it with the size of additional investment (ΔI) = EF . You will find increase in income is more than the increase in investment ($JK > EF$). This offers the conclusion that additional investment carries a multiplier effect on the level of GDP (income or output). This brings us to the concept of multiplier.

5. INVESTMENT MULTIPLIER AND ITS MECHANISM

The Concept of Multiplier

We have seen how additional investment (ΔI) causes additional output (ΔY) in the economy. We have noted that increase in output/income (ΔY) is many times more than the increase in investment (ΔI). The factor by which the increase in output/income is greater than the increase in investment is called investment multiplier or output multiplier. It is measured as the ratio between increase in output/income and increase in investment.

Investment multiplier or output multiplier refers to the 'number of times by which the increase in output/income (ΔY) exceeds the increase in investment (ΔI)'. It is measured as the ratio between change in output/income and change in investment.

$$K = \frac{\Delta Y}{\Delta I}$$

[Here, K = Multiplier
 ΔY = Change in output/income
 ΔI = Change in investment.]



Illustration

If investment increases by ₹ 15 crore and as a consequence, income increases by ₹ 60 crore, it implies that increase in income (ΔY) is 4 times the increase in investment (ΔI). Accordingly, multiplier (K) = 4.

$$K = \frac{\Delta Y}{\Delta I} = \frac{60}{15} = 4$$

Relationship between Multiplier and MPC (Marginal Propensity to Consume)

There is a direct relationship between multiplier and MPC. Higher the value of MPC, higher the multiplier and *vice versa*. In fact, multiplier is often estimated with reference to MPC, as under:

$$K = \frac{1}{1 - \text{MPC}}$$

This equation establishes a direct relationship between MPC and K .

Illustration

If MPC = 0.5,

$$K = \frac{1}{1 - 0.5} = \frac{1}{0.5} = 2$$

And, if MPC is 0.8,

$$K = \frac{1}{1 - 0.8} = \frac{1}{0.2} = 5$$

Thus, increase in MPC implies increase in the value of multiplier.

How do we find that $K = \frac{1}{1-MPC}$

We know that,

$$K = \frac{\Delta Y}{\Delta I} \quad \dots(i)$$

We also know that,

$$Y = C + I \quad (\text{in a state of equilibrium})$$

Accordingly,

$$\Delta Y = \Delta C + \Delta I$$

Or,

$$\Delta I = \Delta Y - \Delta C$$

(Here, ΔI = Change in investment; ΔY = Change in income; and ΔC = Change in consumption.)

Putting the value of ΔI in equation (i), we get

$$K = \frac{\Delta Y}{\Delta Y - \Delta C}$$

Dividing right hand side of the equation by ΔY ,

$$K = \frac{\frac{\Delta Y}{\Delta Y}}{\frac{\Delta Y}{\Delta Y} - \frac{\Delta C}{\Delta Y}} = \frac{1}{1 - \frac{\Delta C}{\Delta Y}} \quad \text{or} \quad K = \frac{1}{1-MPC} \quad \left(\because MPC = \frac{\Delta C}{\Delta Y} \right)$$

Since $MPC + MPS = 1$, or $MPS = 1 - MPC$, we can also write that,

$$K = \frac{1}{MPS}$$

Implying that multiplier is the reciprocal of marginal propensity to save. Higher the value of MPS, lower the value of K.

Let us understand the logic behind the direct relationship between MPC and multiplier. It runs like this:

- Additional investment (ΔI) means additional expenditure in the economy; additional expenditure means additional income (ΔY) in the economy.
- Thus, if $\Delta I = 100$, then $\Delta Y = 100$, as soon as investment expenditure is incurred.
- Let us take this ΔY as increase in income in the round-1.
- This $\Delta Y (=100)$ would be split into ΔC and ΔS . Because a part of income is spent and a part of it is saved.
- In round-2, ΔC would be converted into ΔY (because ΔC is expenditure and expenditure causes income).

Here, comes an important point:

Higher value of MPC would mean higher ΔC .

Example: If $MPC = 0.4$, then $\Delta C = 0.4(100) = 40$.

If $MPC = 0.6$, then $\Delta C = 0.6(100) = 60$.

Accordingly, ΔY in round-2 (which is equal to ΔC) would depend on the value of MPC. Higher MPC would mean higher ΔY .

- Conversion of ΔC into ΔY continues in various rounds. And, in all the rounds, higher MPC would cause higher ΔC and therefore, higher ΔY .

- Hence the conclusion that, higher the value of MPC, higher is the generation of income caused by a given increase in investment. Or that, higher the MPC, higher is the value of investment multiplier.

There are so many rounds of increase in income (ΔY) caused by increase in investment (ΔI). In the 1st round, $\Delta Y = \Delta I$. But in each subsequent round, $\Delta Y = \Delta C$. Since the value of ΔC depends on MPC, we can conclude that higher MPC implies higher ΔC and, therefore, higher ΔY in different rounds of income generation. Implying that, higher MPC causes higher value of investment multiplier. The section on multiplier mechanism should explain this point further.

HOTS

Q. 1. In an economy, government makes some additional investment. Find its value when MPC = 0.5 and increase in income = ₹ 1,000.

Ans. We know,

$$K (\text{multiplier}) = \frac{\Delta Y}{\Delta I}$$

We also know that,
$$K = \frac{1}{1 - \text{MPC}}$$

Substituting the value of MPC,
$$K = \frac{1}{1 - 0.5}$$

$$= \frac{1}{0.5} = 2$$

We know,
$$K = \frac{\Delta Y}{\Delta I} \text{ and } \Delta Y = 1,000$$

Thus,
$$\frac{1,000}{\Delta I} = 2$$

$$\therefore \Delta I = \frac{1,000}{2} = 500$$

Additional investment by the government = ₹ 500.

Q. 2. If MPC = 0.75, how much additional investment is required to increase income by ₹ 600? Also, find the multiplier.

Ans.
$$K (\text{multiplier}) = \frac{1}{1 - \text{MPC}}$$

$$= \frac{1}{1 - 0.75} = \frac{1}{0.25} = 4$$

We know,
$$K = \frac{\Delta Y}{\Delta I}$$

So that,
$$\Delta I = \frac{\Delta Y}{K}$$

$$= \frac{600}{4} = 150$$

Thus, additional investment of ₹ 150 is required to increase income by ₹ 600 and the value of multiplier = 4.

Q. 3. Find MPC when investment multiplier = 1.

Ans.
$$K (\text{multiplier}) = \frac{1}{1 - \text{MPC}}$$

Given that,
$$\frac{1}{1 - \text{MPC}} = 1$$

$\Rightarrow 1 = 1 - \text{MPC}$

$\Rightarrow \text{MPC} = 1 - 1 = 0$

Thus, when $K = 1$, $\text{MPC} = 0$.

Q. 4. Find the value of multiplier when $\text{MPC} = \text{MPS}$.

Ans. We know,
$$\text{MPC} + \text{MPS} = 1$$

When $\text{MPC} = \text{MPS}$, each parameter must be equal to 0.5.

Now,
$$K = \frac{1}{\text{MPS}} = \frac{1}{0.5} = 2.$$

Multiplier Mechanism

Table 3 illustrates the multiplier mechanism. It is based on the assumption that $\text{MPC} = 0.5$.

Table 3. Multiplier Process (Assumption: $\text{MPC} = 0.5$)

Round	Increase in Investment Expenditure (₹ crore)	Change in Income (ΔY) (₹ crore)	Induced Change in Consumption ($\text{MPC} = 0.5$) (₹ crore)	Leakage or Saving (₹ crore)
1	100	100	50.00	50.00
2	—	50	25.00	25.00
3	—	25	12.50	12.50
4	—	12.50	6.25	6.25
5	—	6.25	3.12	3.12
6	—	3.12	1.56	1.56
7	—	1.56	0.78	0.78
8	—	0.78	0.39	0.39
9	—	0.39	0.20	0.20
10	—	0.20	0.10	0.10
Total	100	200	100	100

(Figures approximated up to 2 decimal points.)

- (i) Table 3 shows that as a result of initial increase in investment by ₹ 100 crore, there is increase in income by ₹ 100 crore in round-1. Our assumption is that MPC is 0.5. Hence, because of the increase in income by ₹ 100 crore, consumption will increase by ₹ 50 crore and remaining ₹ 50 crore will be saved.
- (ii) In round-2, because of expenditure of ₹ 50 crore on consumption, there will be an increase in income by ₹ 50 crore. Now, ΔY (= ₹ 50 crore) would be split into ΔC = ₹ 25 crore and ΔS = ₹ 25 crore.

- (iii) On account of increase in consumption expenditure by ₹ 25 crore, there will be increase in income by ₹ 25 crore in round-3. Now, ΔY (= ₹ 25 crore) would be split into ΔC = ₹ 12.5 crore and ΔS = ₹ 12.5 crore. Accordingly, in round-4 income will increase by ₹ 12.5 crore.
- (iv) In different time periods, as shown in the table, income will go on increasing as a result of increase in consumption expenditure. Total increase in income = ₹ 200 crore. Since, increase in investment (ΔI) = ₹ 100 crore, and increase in income (ΔY) = ₹ 200 crore, it follows that multiplier = 2.

$$K = \frac{\Delta Y}{\Delta I} = \frac{200}{100} = 2$$

Or,

$$K = \frac{1}{1 - MPC}$$

$$= \frac{1}{1 - 0.5} = \frac{1}{0.5} = 2$$

Obviously, higher MPC would have caused greater increase in income, implying a higher value of multiplier.

Forward Action and Backward Action of Multiplier

Multiplier action is 'forward' when there is a multiple increase in income caused by an increase in investment.

On the other hand, multiplier action is 'backward' when there is a multiple decrease in income caused by decrease in investment.

Thus, if investment increases by ₹ 100 crore and $MPC = 0.5$, there will be increase in income 2 times the increase in investment. This is forward action multiplier.

$$\begin{aligned} \Delta Y &= K \Delta I \\ &= 2(100) = 200 \\ K &= \frac{1}{1 - MPC} \\ &= \frac{1}{1 - 0.5} = \frac{1}{0.5} = 2 \end{aligned}$$

On the other hand, if investment decreases by ₹ 100 crore and $MPC = 0.5$, there will be decrease in income 2 times the decrease in investment. This is backward action multiplier.

$$\begin{aligned} \Delta Y &= K(-\Delta I) \\ &= 2(-100) \\ &= -200 \end{aligned}$$

$$K = \frac{1}{1 - MPC}$$

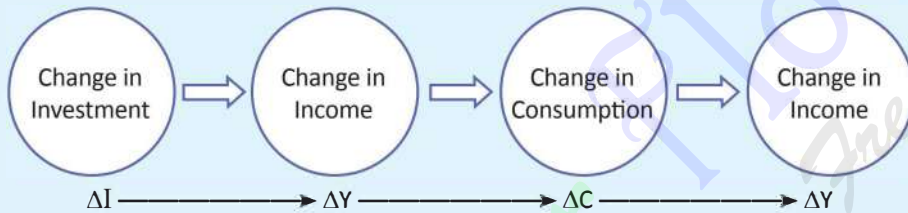
$$= \frac{1}{1 - 0.5} = \frac{1}{0.5} = 2$$

Briefly, in case of forward action multiplier, the equilibrium level of income increases, and in case of backward action multiplier, the equilibrium level of income decreases.

HOTS

Q. 1. Briefly explain the multiplier process.

Ans. The working of the multiplier assumes the following process:



Change in investment causes change in income. As a result, there is change in consumption. Consumption expenditure of one person is an income of the other. Hence, change in consumption leads to change in income. This process continues till ΔC reduces to zero. MPC is the core factor in the process of income generation. Higher the MPC, greater is the conversion of income into consumption expenditure. Accordingly, greater is the generation of income. Because, ultimately it is expenditure which is converted into income. Expenditure is an injection into the income generation process, saving is a leakage.

Q. 2. What will be the value of multiplier if entire additional income is converted into additional consumption?

Ans. In such a situation, $\Delta C = \Delta Y$ (or change in consumption = change in income) or that

$$MPC = \frac{\Delta C}{\Delta Y} = 1$$

Accordingly, K (or multiplier) would be:

$$K = \frac{1}{1 - MPC} = \frac{1}{1 - 1} = \frac{1}{0} = \infty$$

The multiplier value would tend towards infinity.

Q. 3. In an economy investment expenditure increased by ₹ 400 crore and marginal propensity to consume is 0.8. Calculate increase in income and increase in saving.

Ans.
$$\text{Multiplier (K)} = \frac{1}{1 - MPC} = \frac{1}{1 - 0.8} = \frac{1}{0.2} = 5$$

$$MPS = 1 - MPC = 1 - 0.8 = 0.2$$

Increase in Income = $K \times \Delta I = 5 \times 400 = ₹ 2,000$ crore.

Increase in Saving = $MPS \times \Delta Y = 0.2 \times 2,000 = ₹ 400$ crore.

Power Points & Revision Window

Equilibrium Output implies equilibrium income as well as equilibrium employment. It also implies equilibrium GDP when we are considering a closed economy.

- **Equilibrium is Struck** when $AS = AD$ (implying that planned output = planned demand). Or, when $S = I$ (implying that planned saving = planned investment).

- **Equilibrium Situation** is that situation when what is planned to be produced is exactly equal to what planned to be purchased during a given period of time. The producers do not suffer: (i) the loss due to excess stocks, or (ii) the loss due to lack of stocks. When $AS = AD$: actual stocks (with producers) = desired stocks (with producers).

- **Adjustment Mechanism:** When $AS > AD$ or when $AD > AS$, the equilibrium is restored through changes in AS (planned output), as it is assumed to be perfectly elastic, owing to the existence of excess capacity in the economy.

Shift in Equilibrium occurs when additional investment causes increase in the level of income through an upward shift in AD.

- **Additional investment** has a multiplier effect on the level of income. Additional investment causes a positive multiplier effect on the level of income.

Investment Multiplier is the ratio between change in income and change in investment.

$$K = \frac{\Delta Y}{\Delta I}$$

(Here, K = Multiplier; ΔY = Change in income; ΔI = Change in investment.)

- **Relation between Multiplier and MPC:** Multiplier is positively related to MPC (or inversely related to MPS). Higher the MPC, higher the multiplier and smaller the MPC, smaller the multiplier will be. Thus,

$$K = \frac{1}{1 - MPC}$$
$$= \frac{1}{MPS}$$

- **Investment Multiplier Works through Change in Consumption:** Initial increase in income due to initial investment expenditure causes increase in consumption which (because it is an expenditure) becomes somebody's income again. So greater the additional consumption (ΔC) out of additional income (ΔY), greater is the generation of income. Or, greater the marginal propensity to consume ($\Delta C/\Delta Y$), greater will be the value of the multiplier.

- **Forward and Backward Action of the Multiplier:** Investment multiplier works both ways, positive and negative.

- (i) Additional investment causes multiple increase in income. This is forward action of the multiplier.
- (ii) Decrease in investment causes a multiple decrease in income. This is backward action of the multiplier.

EXERCISE

1. Objective Type Questions (Remembering & Understanding based Questions)

A. Multiple Choice Questions

Choose the correct option:

1. Since $AS = C + S$ and $AD = C + I$, the equilibrium will be established where $C + S = C + I$, or where:
(a) $S = I$ (b) $S > I$
(c) $S < I$ (d) all of these
2. Equilibrium level of income/output and employment is viewed from which of the following approaches?
(a) $AS = AD$ approach (b) $S = I$ approach
(c) Both (a) and (b) (d) None of these
3. Keynes theory of GDP determination is based on the assumption of:
(a) a closed economy (b) short period analysis
(c) AS is perfectly elastic (d) all of these
4. On account of an injection of aggregate demand, equilibrium level of income:
(a) increases (b) decreases
(c) remains constant (d) none of these
5. If aggregate demand increases, aggregate supply will increase only when there is:
(a) excess capacity
(b) under utilisation of the existing resources
(c) over utilisation of the existing resources
(d) both (a) and (b)
6. Increase in the level of employment leads to proportionate increase in output, because:
(a) more efficient technology is used (b) technology remains constant
(c) less efficient technology is used (d) none of these
7. Keynes discusses equilibrium level of output, using the concept of:
(a) autonomous investment (b) induced investment
(c) both (a) and (b) (d) none of these
8. Investment which is independent of the level of income is called:
(a) autonomous investment
(b) induced investment (investment as induced by the level of GDP in the economy)
(c) fixed investment
(d) inventory investment
9. Ex-ante saving refers to:
(a) desired saving during the period of one year
(b) planned saving during the period of one year
(c) actual saving during the period of one year
(d) both (a) and (b)

10. Multiplier =
- (a) $\frac{\Delta Y}{\Delta S}$ (b) $\frac{\Delta Y}{\Delta I}$
 (c) $\frac{\Delta I}{\Delta Y}$ (d) $\frac{\Delta Y}{\Delta C}$
11. If MPC = 0.9, then value of multiplier will be:
 (a) 6 (b) 9
 (c) 10 (d) 12
12. Multiplier is estimated as:
 (a) $\frac{1}{MPC}$ (b) $\frac{1}{1-MPC}$
 (c) $\frac{1}{1+MPC}$ (d) $\frac{1}{1-MPS}$
13. If MPS = $\frac{1}{4}$, the value of multiplier will be:
 (a) 4 (b) 2
 (c) 8 (d) 6
14. If MPC = 0, the multiplier will be:
 (a) 1 (b) 0
 (c) 2 (d) ∞
15. If MPC increases, value of multiplier will:
 (a) increase (b) decrease
 (c) remain constant (d) increase as much as the increase in MPC
16. If marginal propensity to save decreases, the value of the multiplier will:
 (a) increase (b) decrease
 (c) remain constant (d) decrease as much as the decrease in MPS
17. If MPC = MPS, the value of multiplier will be:
 (a) 0 (b) 1
 (c) 2 (d) ∞
18. If entire additional income is converted into additional consumption, the value of multiplier will be:
 (a) 2 (b) 0
 (c) 1 (d) ∞
19. If investment increases from 400 to 550 and income increases from 900 to 1,650, the MPS should be equal to:
 (a) 0.1 (b) 0.2
 (c) 0.3 (d) 0.4
20. If income increases from 2,500 to 3,900, and autonomous investment increases by 350, the MPC should be:
 (a) 0.9 (b) 0.8
 (c) 0.75 (d) 0.6

Answers

1. (a) 2. (c) 3. (d) 4. (a) 5. (d) 6. (b) 7. (a) 8. (a) 9. (d) 10. (b)
 11. (c) 12. (b) 13. (a) 14. (a) 15. (a) 16. (a) 17. (c) 18. (d) 19. (b) 20. (c)

B. Fill in the Blanks

Choose appropriate word and fill in the blank:

- _____ refers to the desired level of output in the economy.
(Aggregate demand/Aggregate supply)
- Equality between AS and AD implies the equality between _____. (Y and AD/Y and AS)
- When AS = AD, actual stocks with the producers is _____ desired stocks with the producers.
(equal to/greater than)
- Ex-post investment refers to _____ investment in the economy during the period of one year.
(actual/planned)
- Keynes discusses the theory of equilibrium GDP in the context of an economy in a state of _____ demand.
(deficient/excess)
- Owing to an additional investment, level of income _____.
(increases/decreases)
- Multiplier = _____
 $\left(\frac{1}{MPC} / \frac{1}{1 - MPC} \right)$
- Multiplier action is _____ when there is a multiple increase in income caused by an increase in investment.
(forward/backward)
- Multiplier is the _____ of marginal propensity to save.
(reciprocal/percentage expression)
- When the level of saving increases by ₹ 300 crore and income increases by ₹ 900 crore, value of multiplier will be _____.
(2/3)

Answers

- | | | | | |
|---------------------|------------------------|-------------|---------------|--------------|
| 1. Aggregate supply | 2. Y and AD | 3. equal to | 4. actual | 5. deficient |
| 6. increases | 7. $\frac{1}{1 - MPC}$ | 8. forward | 9. reciprocal | 10. 3 |

C. True or False

State whether the following statements are True or False:

- When $Y > AD$, the producers suffer losses because of excessive stocks. (True/False)
- In the context of equilibrium GDP, desired investment expenditure is assumed to be autonomous. (True/False)
- The 45° line indicates that AS and GDP are identical to each other. (True/False)
- $S < I$ implies a situation when a fall in expenditure through 'S' is less than the rise in expenditure through 'I'. (True/False)
- An open economy has no economic relations with rest of the world. (True/False)
- If $MPC = 0.5$, value of multiplier will be 2. (True/False)
- Higher MPC causes higher value of investment multiplier. (True/False)
- When investment multiplier is 1, the value of marginal propensity to consume is also equal to one. (True/False)

9. Autonomous investment curve is a vertical straight line shooting from the X-axis. (True/False)
 10. In case of backward action multiplier, the equilibrium level of income decreases. . (True/False)

Answers

1. True 2. True 3. True 4. True 5. False 6. True 7. True 8. False 9. False 10. True

D. Matching the Correct Statements

I. From the set of statements given in Column I and Column II, choose the correct pair of statements:

Column I	Column II
(a) AS < AD	(i) Some of the goods would remain unsold
(b) Equilibrium GDP	(ii) Ex-ante investment
(c) Perfectly elastic AS	(iii) No excess capacity in the economy
(d) Saving	(iv) Negatively related to income
(e) Multiplier	(v) $\frac{1}{1 - MPS}$

Answer

(b) Equilibrium GDP—(ii) Ex-ante investment

II. Identify the correct sequence of alternatives given in Column II by matching them with respective items in Column I:

Column I	Column II
(a) Ex-ante saving	(i) Planned output
(b) Multiplier	(ii) AS = AD
(c) Aggregate supply	(iii) Multiplier = 5
(d) Equilibrium income	(iv) Desired saving
(e) MPC = 0.8	(v) $\frac{\Delta Y}{\Delta I}$

Answers

(a)—(iv), (b)—(v), (c)—(i), (d)—(ii), (e)—(iii)

E. ‘Very Short Answer’ Objective Type Questions

1. Give the meaning of aggregate demand.

Ans. Aggregate demand is the total demand for goods and services in an economy, measured in terms of total expenditure.

2. Define aggregate supply.

Ans. Aggregate supply refers to planned output in the economy. This is the output which the producers wish to produce during an accounting year.

3. How do you define equilibrium level of income?

Ans. Equilibrium level of income is that level of income where $AS = AD$. Also, equilibrium income is struck when $S = I$.

4. What is autonomous investment?

Ans. Autonomous investment refers to investment which is independent of the rate of interest and the level of GDP in the economy.

5. What is meant by ex-ante investment?

Ans. Ex-ante investment refers to desired (or planned) investment corresponding to different income levels in the economy.

6. What is meant by ex-post investment?

Ans. Ex-post investment refers to actual investment in the economy during the period of one year.

7. What are 'desired stocks' with the producers?

Ans. Desired stock is that level of stock where $AS = AD$ and the producers are in a state of equilibrium.

8. What are 'actual stocks' with the producers?

Ans. Actual stocks include both desired as well as undesired stock. It can be calculated as:

$$\text{Closing stock} - \text{Opening stock}$$

9. When are actual stocks greater than the desired stocks?

Ans. When aggregate demand falls short of the expectations of the producers, and some output remains unsold.

10. When are actual stocks less than the desired stocks?

Ans. When aggregate supply falls short of aggregate demand, and the producers suffer a loss due to unfulfilled demand.

11. Define investment multiplier.

Ans. Investment multiplier is the ratio of a change in income to a given change in investment.

12. Give a formula of multiplier.

Ans. Multiplier (K) = $\frac{\Delta Y}{\Delta I}$.

Also,
$$K = \frac{1}{1 - MPC} = \frac{1}{MPS}$$

13. If the value of multiplier is 4, what will be the effect on the income of an economy if investment increases by ₹ 100 crore?

Ans. Income will increase by ₹ 400 crore.

14. If marginal propensity to save is 0.25, how many times will income increase in response to a given increase in investment?

Ans. 4 times.

15. If marginal propensity to consume is 0.5, what will be the value of the multiplier?

Ans. Multiplier = 2.

16. Find out the value of the multiplier, if MPC is zero.

Ans. Multiplier = 1.

2. Reason-based Questions (Comprehension of the Subject-matter)

Read the following statements carefully. Write True or False with a reason.

1. Increase in investment causes a backward shift in the equilibrium level of income and output.

Ans. False. Increase in investment causes increase in AD. Accordingly, it would lead to a forward shift in the equilibrium level of income and output.

2. In case $AS = AD$, there is an obvious equality between S and I .

Ans. True. The equality between AS and AD implies the equality between S and I . Accordingly, there is only one level of equilibrium output when $AS = AD$ and $S = I$.

3. Ex-post investment cannot be less than ex-ante investment.

Ans. True. Because, ex-post investment includes investment both in desired as well as undesired stocks (with the producers) while ex-ante investment includes investment only in desired stocks.

4. In the context of equilibrium GDP, desired $AS =$ desired AD .

Ans. True. Equilibrium GDP is achieved where desired $AS =$ desired AD . Actual AS is always equal to actual AD , as in national income accounting.

5. Actual AS is always equal to actual AD .

Ans. True. Because in the estimation of actual AD , we assume that unsold stocks are purchased by the producers themselves. In other words, unsold stocks are treated as inventory investment of the producers.

6. The producers suffer losses when actual stocks are less than the desired stocks.

Ans. True. When the actual stocks are less than the desired stocks, the producers suffer the loss of unfulfilled demand.

7. Multiplier process assumes the existence of excess capacity in the economy.

Ans. True. Without excess capacity, output cannot increase in response to the increase in investment during the short period.

8. There is a direct relationship between MPC and value of investment multiplier.

Ans. True. There is a direct relationship between MPC and value of investment multiplier. Higher the value of MPC , higher the investment multiplier and *vice versa*. Because,

$$K = \frac{1}{1 - MPC}$$

9. Equilibrium level of output increases proportionate to the increase in investment in the economy.

Ans. False. Increase in investment has a multiplier effect on the equilibrium level of output. Accordingly, output increases proportionately greater than the increase in investment.

10. In the Keynesian model of equilibrium GDP, AS is assumed to be perfectly elastic.

Ans. True. In the Keynesian model of equilibrium GDP, AS is assumed to be perfectly elastic, implying that AS coincides with AD at all levels of AD .

11. In the Keynesian model, short period equilibrium is discussed with reference to constant price level.

Ans. True. Price level remains constant because Keynes assumes that AS is perfectly elastic owing to the existence of excess capacity.

12. Output always increases when AD increases.

Ans. False. In response to increase in AD , output increases only till full employment equilibrium is struck in the economy.

13. If $I > S$, level of Y must rise.

Ans. True. When $I > S$, it implies that $AD > AS$. It will lead to a rise in the level of output. But only up to the point of full employment, or only till the existence of excess capacity in the economy.

14. Equilibrium GDP refers to a situation when: actual stocks = desired stocks.

Ans. True. Equilibrium GDP is attained when actual stocks = desired stocks. It implies that the producers do not suffer the burden of unwanted stock or the loss of unfulfilled demand.

15. Equilibrium GDP refers to a situation when: injections = withdrawals.

Ans. True. Equilibrium GDP is achieved when $S = I$. Since S refers to withdrawal of expenditure (known as withdrawal in terms of S) from the circular flow and I refers to injection of expenditure into the circular flow. At the point of equilibrium, injections = withdrawals.

16. Perfectly elastic AS means AS adjusts itself to all levels of AD.

Ans. True. Perfectly elastic AS implies that whenever AD is greater than or less than AS, it is AS that adjusts itself to AD to restore the equilibrium. Adjustment of AS becomes possible because of the existence of excess capacity in the economy.

17. Autonomous increase in investment always causes an autonomous increase in income.

Ans. False. While investment is autonomous, increase in income is induced through increase in expenditure which depends upon the marginal propensity to consume.

18. Value of marginal propensity to save and investment multiplier are inversely related.

Ans. True. Marginal propensity to save (MPS) and multiplier are inversely related. Higher the MPS, lower the multiplier and lower the MPS, higher the multiplier, as $K = \frac{1}{MPS}$.

19. Zero MPC implies zero multiplier.

Ans. False. Because Multiplier (K) = $\frac{1}{1 - MPC}$

$$\text{When: } MPC = 0, \quad K = \frac{1}{1 - 0} = \frac{1}{1} = 1$$

Therefore, when marginal propensity to consume (MPC) is zero, the value of multiplier will be one. It means that increase in income will just be equal to increase in investment.

20. When investment multiplier is 1, the value of marginal propensity to consume is also 1.

Ans. False. When investment multiplier is 1, marginal propensity to consume is zero. This is because:

$$\text{Multiplier (K)} = \frac{1}{1 - MPC}$$

Given $K = 1$, we may write that

$$\frac{1}{1 - MPC} = 1$$

$$\Rightarrow 1 = 1 - MPC$$

$$\Rightarrow MPC = 1 - 1 = 0$$

21. Value of investment multiplier varies between zero and infinity.

Ans. False. Value of investment multiplier varies between one and infinity. The minimum value of investment multiplier is 1. It can never be less than one because MPC is never negative. At least it is 0, and at most it is 1.

$$\text{In case } MPC = 0, \quad K = \frac{1}{1 - MPC} = \frac{1}{1 - 0} = \frac{1}{1} = 1$$

$$\text{In case } MPC = 1, \quad K = \frac{1}{1 - MPC} = \frac{1}{1 - 1} = \frac{1}{0} = \infty$$

So that, value of K (multiplier) always varies between 1 and ∞ .

22. If the ratio of marginal propensity to consume and marginal propensity to save is 8 : 2, the value of investment multiplier will be 4.
- Ans. False. Because, if the ratio of marginal propensity to consume and marginal propensity to save is 8 : 2 (or 4 : 1), MPC will be 0.8 and MPS = 0.2 (because MPC + MPS = 1 and MPC is 4 times MPS). In such a case,

$$K = \frac{1}{1 - \text{MPC}}$$

$$= \frac{1}{1 - 0.8} = \frac{1}{0.2} = 5$$

Details:

Let us assume that MPC = 4x and MPS = 1x, as ratio of MPC and MPS = 4 : 1.

We know,

$$\text{MPC} + \text{MPS} = 1 \Rightarrow 4x + 1x = 1$$

$$\Rightarrow 5x = 1 \Rightarrow x = \frac{1}{5} = 0.2 \text{ (implying MPS} = 0.2\text{)}$$

Accordingly, MPC = 4 × 0.2 = 0.8.

3. HOTS & Applications

- In a situation when planned S > planned I, inventory investment of the producers is expected to be larger than desired. Do you agree?

Ans. When planned S > planned I, some output would remain unsold and producers will have undesired stock of goods. Hence, the given statement is correct.
- Higher saving induces greater investment. Comment.

Ans. The given statement is incorrect. According to Keynes, saving causes a leakage in the circular flow of income. Higher saving implies lower consumption which reduces the inducement to invest.
- Is actual stock equal to desired stock with the producers only in a state of full employment?

Ans. No, equality between desired stock and actual stock with the producers refers to the state of equilibrium where AS = AD. This may occur with or without the state of full employment.
- Is it correct that a tax on the households reduces their MPC?

Ans. No, it is not correct. A tax on the households only reduces their disposable income.
- If I < S, AS tends to contract. Defend or refute.

Ans. The above statement is correct. When I < S, producers will have undesired stock. In order to clear their stock, the producers would like to produce less output implying AS tends to contract.
- Is S always a virtue, as it is a source of investment?

Ans. Saving is not always a virtue. Saving is a vice as well. Increasing S causes a cut in consumption expenditure. Implying a cut in AD. Accordingly, economy may be driven into a state of underemployment/unemployment.
- Do you agree that by raising the level of investment in the economy, the government intends to raise the value of output multiplier?

Ans. No, by raising the level of investment, the government intends to increase the level of AD in the economy. That has nothing to do with the multiplier which, in turn, depends on marginal propensity to consume of the consumers. Hence, the given statement is incorrect.
- Why do we consider imports as a negative component of AD?

Ans. Imports are considered as a negative component of AD, because imports are opposite of exports which is a positive component of AD.

9. In an economy income increases by ₹ 10,000 as a result of a rise in investment expenditure by ₹ 1,000. Calculate:

- (i) Investment multiplier.
- (ii) Marginal propensity to consume.

Ans. Given, increase in income (ΔY) = ₹ 10,000

Increase in investment expenditure (ΔI) = ₹ 1,000

(i) We know,

$$\text{Investment multiplier (K)} = \frac{\Delta Y}{\Delta I} = \frac{10,000}{1,000} = 10$$

(ii) We also know, $K = \frac{1}{1 - \text{MPC}} \Rightarrow 10 = \frac{1}{1 - \text{MPC}}$

$$\Rightarrow 1 - \text{MPC} = \frac{1}{10} \Rightarrow 1 - \text{MPC} = 0.1$$

$$\Rightarrow \text{MPC} = 1 - 0.1 = 0.9$$

- (i) Investment multiplier = 10.
- (ii) Marginal propensity to consume = 0.9.

10. In an economy, 75 per cent of the increase in income is spent on consumption. Investment is increased by ₹ 1,000 crore. Calculate:

- (i) Total increase in income.
- (ii) Total increase in consumption expenditure.

Ans. (i) 75 per cent of the increase in income is spent on consumption.

$$\therefore \text{MPC} = \frac{\Delta C}{\Delta Y} = \frac{75}{100} = 0.75$$

$$\text{Multiplier (K)} = \frac{1}{1 - \text{MPC}} = \frac{1}{1 - 0.75} = \frac{1}{0.25} = 4$$

We know, $K = \frac{\Delta Y}{\Delta I}$

$$\Rightarrow \Delta Y = K \times \Delta I$$

$$\Rightarrow \Delta Y = 4 \times 1,000 = 4,000$$

(ii) Increase in consumption expenditure (ΔC)

$$= \text{MPC} \times \Delta Y$$

$$= 0.75 \times 4,000 \quad (\because \text{MPC} = \frac{\Delta C}{\Delta Y}, \text{ so that } \Delta C = \text{MPC} \times \Delta Y)$$

$$= \frac{75}{100} \times 4,000 = 3,000$$

- (i) Total increase in income = ₹ 4,000 crore.
- (ii) Total increase in consumption expenditure = ₹ 3,000 crore.

11. If autonomous expenditure by the government increases by ₹ 5,000, find increase in equilibrium GDP when half of income is always spent on the purchase of goods for consumption.

Ans. $\Delta Y = \frac{1}{1 - \text{MPC}} \times \Delta A$

(where A is autonomous expenditure by the government)

If half of income is always spent on the purchase of goods for consumption, it implies that $MPC = 0.5$. Thus,

$$\Delta Y = \frac{1}{1 - 0.5} \times 5,000 = \frac{5,000}{0.5} = 10,000$$

Increase in equilibrium GDP = ₹ 10,000.

12. Find incremental investment when equilibrium GDP increases by ₹ 50,000 and half of additional income is always saved in the economy.

Ans. Change in savings = $50,000 \times \frac{1}{2} = 25,000$

We know,
$$MPS = \frac{\Delta S}{\Delta Y} = \frac{25,000}{50,000} = 0.5$$

We know,
$$\text{Multiplier (K)} = \frac{1}{1 - MPC} = \frac{1}{MPS}$$

Or,
$$K = \frac{\Delta Y}{\Delta I}$$

Now, $MPS = 0.5$, we get
$$\Delta I = \frac{\Delta Y}{\Delta K}$$

$$= \frac{50,000}{2} \qquad \left[K = \frac{1}{MPS} = \frac{1}{0.5} = 2 \right]$$

$$= 25,000$$

Increase in GDP by ₹ 50,000 is caused by increase in investment of ₹ 25,000.

13. The saving function of an economy is $S = -200 + 0.25Y$. The economy is in equilibrium when income is equal to ₹ 2,000. Calculate:
- Investment expenditure at equilibrium level of income.
 - Autonomous consumption.
 - Investment multiplier.

Ans. (i) Given, $S = -200 + 0.25Y$

Income (Y) = ₹ 2,000

At the equilibrium level, $S = I$

$\Rightarrow -200 + 0.25Y = I$

$\Rightarrow I = -200 + 0.25(2,000)$

$I = -200 + 500 = 300$

(ii) At $Y = 0$, $S = -200 + 0.25(0)$

$S = -200$

Autonomous consumption (\bar{C}) = $-(\bar{S})$

$= -(-200) = 200$

(iii) Investment multiplier (K) = $\frac{1}{1 - MPC} = \frac{1}{MPS}$

$K = \frac{1}{0.25} = 4 \qquad (MPS = 0.25)$

(i) Investment expenditure at equilibrium level of income = ₹ 300.

(ii) Autonomous consumption = ₹ 200.

(iii) Investment multiplier = 4.

14. In an economy the consumption function is $C = 500 + 0.75Y$ where C is consumption expenditure and Y is income. Calculate the equilibrium level of income and consumption expenditure when investment expenditure is ₹ 5,000.

Ans. Given, $C = 500 + 0.75Y$

Investment expenditure (I) = ₹ 5,000

At equilibrium,

$$Y = C + I$$

$$Y = 500 + 0.75Y + 5,000$$

$$Y = 5,500 + 0.75Y$$

$$Y - 0.75Y = 5,500$$

$$0.25Y = 5,500$$

$$Y = \frac{5,500}{0.25} = 22,000$$

When $Y = 22,000$,

$$C = 500 + 0.75 (22,000)$$

$$= 500 + 16,500 = 17,000$$

Equilibrium level of income = ₹ 22,000.

Equilibrium level of consumption expenditure = ₹ 17,000.

15. In an economy $S = -50 + 0.5Y$ is the saving function (where S = saving and Y = national income) and investment expenditure is ₹ 7,000. Calculate:

(i) Equilibrium level of national income.

(ii) Consumption expenditure at equilibrium level of national income.

Ans. (i) Given, $S = -50 + 0.5Y$

Investment expenditure (I) = ₹ 7,000

At the equilibrium level,

$$S = I$$

⇒

$$-50 + 0.5Y = 7,000$$

$$0.5Y = 7,000 + 50$$

$$0.5Y = 7,050$$

$$Y = \frac{7,050}{0.5} = 14,100$$

(ii) At $Y = 14,100$

$$\text{Saving, } S = -50 + 0.5 (14,100)$$

$$= -50 + 7,050$$

∴

$$S = 7,000$$

$$\text{Consumption expenditure, } C = Y - S$$

$$= 14,100 - 7,000 = 7,100$$

Alternative Method

At equilibrium level,

$$\text{Saving} = \text{Investment}$$

∴

$$\text{Saving} = 7,000$$

$$\text{Consumption expenditure, } C = Y - S$$

$$= 14,100 - 7,000 = 7,100$$

(i) Equilibrium level of national income = ₹ 14,100.

(ii) Consumption expenditure at equilibrium level of national income = ₹ 7,100.

16. Given, the consumption function, $C = 150 + 0.6Y$, where C = consumption expenditure, Y = income and investment expenditure = ₹ 2,000. Calculate:
- Equilibrium level of national income.
 - Consumption expenditure at equilibrium level of national income.
 - Saving at equilibrium level of national income.

Ans. (i) Given, $C = 150 + 0.6Y$

Investment expenditure (I) = ₹ 2,000

At the equilibrium level,

$$Y = C + I$$

⇒

$$Y = 150 + 0.6Y + 2,000$$

$$Y = 2,150 + 0.6Y$$

$$Y - 0.6Y = 2,150$$

$$0.4Y = 2,150$$

$$Y = \frac{2,150}{0.4} = 5,375$$

(ii) Consumption, $C = 150 + 0.6(5,375)$

$$= 150 + 3,225 = 3,375$$

(iii) We know that,

$$Y = C + S$$

⇒

$$S = Y - C$$

$$= 5,375 - 3,375 = 2,000$$

Alternatively,

Given:

$C = 150 + 0.6Y$, we can write that

$$S = -150 + 0.4Y \quad (\because \text{MPC} = 0.6, \text{ accordingly} \\ \text{MPS} = 1 - 0.6 = 0.4)$$

Or,

$$S = -150 + 0.4(5,375)$$

$$= -150 + 2,150$$

$$= 2,000$$

(i) Equilibrium level of national income = ₹ 5,375.

(ii) Consumption expenditure at equilibrium level of national income = ₹ 3,375.

(iii) Saving at equilibrium level of national income = ₹ 2,000.

17. In an economy, the consumption function is $250 + 0.5Y$ and the investment expenditure is ₹ 500. Is the economy in equilibrium at an income level ₹ 2,000? Justify your answer.

Ans. No, the economy is not in a state of equilibrium.

Given, consumption function (C) = $250 + 0.5Y$

Investment expenditure (I) = ₹ 500

Level of income (Y) = ₹ 2,000

At the equilibrium level,

$$Y = C + I$$

$$Y = 250 + 0.5Y + 500$$

$$Y = 750 + 0.5Y$$

$$Y - 0.5Y = 750$$

$$0.5Y = 750$$

$$Y = \frac{750}{0.5} = 1,500$$

The equilibrium level of income = ₹ 1,500. The given income (₹ 2,000) is greater than equilibrium level of income (₹ 1,500). Therefore, the economy is not in equilibrium.

18. In an economy, the autonomous consumption is ₹ 200 and marginal propensity to consume is 0.6. If the equilibrium level of income is ₹ 1,000, then the autonomous investment is ₹ 300. Is it correct? Justify your answer.

Ans. No, it is not correct.

Given, autonomous consumption (\bar{C}) = ₹ 200

Marginal propensity to consume (MPC) = 0.6

Equilibrium level of income (Y) = ₹ 1,000

At the equilibrium level,

$$Y = C + I$$

Or,

$$Y = \bar{C} + \text{MPC}(Y) + \bar{I}$$

$$1,000 = 200 + 0.6(1,000) + \bar{I}$$

$$1,000 = 200 + 600 + \bar{I}$$

$$\bar{I} = 1,000 - 800$$

$$= 200$$

Thus, it is proved that the given statement is false. Because the correct value of autonomous investment is ₹ 200.

19. An economy is in equilibrium. Calculate the marginal propensity to save from the following:

National income = ₹ 500.

Autonomous consumption = ₹ 30.

Investment expenditure = ₹ 70.

Ans. Given, national income (Y) = ₹ 500

Autonomous consumption (\bar{C}) = ₹ 30

Investment expenditure (I) = ₹ 70

At the equilibrium level,

$$S = I$$

Or, $-\bar{C} + \text{MPS}(Y) = I$

$$-30 + \text{MPS}(500) = 70$$

$$500(\text{MPS}) = 70 + 30$$

$$500(\text{MPS}) = 100$$

$$\text{MPS} = \frac{100}{500} = 0.2$$

Marginal propensity to save = 0.2.

20. "Government plans Massive Public Investment to Boost Economy." [International Business Times]

Explain the manner in which it is expected to happen.

Ans. Indian economy is passing through a phase of economic slowdown. Private investment is not forthcoming because of (i) the lack of AD, and (ii) the lack of infrastructure. Investment by the government would lead to a rise in AD, as investment involves expenditure and expenditure induces demand. Thus, government investment would address the problem of deficient AD.

Second, infrastructure is expected to be the focus of government investment. Accordingly, the problem of deficient infrastructure would also be addressed.

Thus, we can conclude that massive public investment is expected to boost the Indian economy.

21. *“Banks need to channelise household savings into financial system.” [India Infoline News Service]*
What is the economic value of this statement in the context of the Indian economy?

Ans. India lacks financial inclusion. Most of households stay away from the financial system (briefly, the banking system). They do not have their bank accounts. Accordingly, their savings remain as idle cash balances at home. The banks are advised to open zero balance accounts involving minimum possible formalities. This will encourage the small account holders to park their savings in the banks. The banks can convert these savings into investment by way of loans to the investors. Thus, unproductive household savings may be converted into productive investment. This will make a significant contribution to the process of growth and development.

4. Analysis & Evaluation

1. Why should people save when saving, as a withdrawal from the circular flow of income, causes GDP to shrink?

Ans. It is true that saving causes a leakage from the circular flow of income; accordingly, GDP tends to shrink. But, people save to foster their self-interest. To the individuals and households, saving is a virtue as it yields interest-income. So, what is true at the micro-level need not necessarily be true at the macro-level. This is just a micro-macro paradox.

2. If higher level of expenditure leads to higher level of AD and higher level of AD leads to higher level of output (GDP), why can't India increase its AD (expenditure) by printing more notes and thereby, achieve higher level of GDP.

Ans. The observation that increase in expenditure (implying a shift in the level of AD) leads to higher level of GDP is based on the assumption that there is an excess capacity in the economy. So that, whenever AD increases, the producers are induced to produce more by utilising the unutilised production capacity. In the Indian economy, the problem is not of utilising the excess capacity. Instead, it is the problem of lack of production capacity. In a situation when additional production capacity is not available (or we are not in a position to increase AS in response to increase in AD) any increase in AD by printing more notes would only lead to greater pressure of demand on the available goods and services. It would fuel inflation, without causing any increase in GDP.

3. 'Circular Flow of Money' model suggests that the economy finds its equilibrium ($AD = AS$) when injections are exactly equal to withdrawals. Explain how, citing an example of one type of withdrawal and one type of injection.

Ans. Investment is an example of injection (which raises the level of GDP) and saving is an example of withdrawal (which lowers the level of GDP). Circular flow model suggests that if the entire income generated is spent on the purchase of goods and services, then income (AS) = expenditure (AD) and the equilibrium is struck.

The equilibrium is disturbed if a part of income is saved. Because, saving causes a situation of deficient demand. However, if there is autonomous investment (injection) equivalent to saving (withdrawal) then the deficiency of demand is corrected, and the economy finds its equilibrium.

5. CBSE Questions—Past 5 years (With Answers or Reference to the Text for Answers)

- The value of multiplier is: (choose the correct alternative)
(a) $\frac{1}{MPC}$ (b) $\frac{1}{MPS}$
(c) $\frac{1}{1 - MPS}$ (d) $\frac{1}{MPC - 1}$ [CBSE Delhi 2015]
[(b)]
- An economy is in equilibrium. Calculate national income from the following:
Autonomous consumption = 100.
Marginal propensity to save = 0.2.
Investment expenditure = 200. [CBSE Delhi 2015]
[Page 447]
- An economy is in equilibrium. Find autonomous consumption from the following:
National income = 1,000.
Marginal propensity to consume = 0.8.
Investment expenditure = 100. [CBSE Delhi 2015]
[Page 447]
- An economy is in equilibrium. Find marginal propensity to consume from the following:
National income = 2,000.
Autonomous consumption = 400.
Investment expenditure = 200. [CBSE Delhi 2015]
[Page 447, 448]
- If $MPC = 1$, the value of multiplier is: (choose the correct alternative)
(a) 0 (b) 1
(c) between 0 and 1 (d) infinity [CBSE (AI) 2015]
[(d)]
- An economy is in equilibrium. Calculate the investment expenditure from the following:
National income = 800.
Marginal propensity to save = 0.3.
Autonomous consumption = 100. [CBSE (AI) 2015]
[Page 448]
- An economy is in equilibrium. Calculate the marginal propensity to save from the following:
National income = 1,000.
Autonomous consumption = 100.
Investment = 120. [CBSE (AI) 2015]
[Page 448]
- An economy is in equilibrium. Calculate the national income from the following:
Autonomous consumption = 120.
Marginal propensity to save = 0.2.
Investment expenditure = 150. [CBSE (AI) 2015]
[Page 448, 449]

9. If $MPC = 0$, the value of multiplier is: (choose the correct alternative)
- (a) 0 (b) 1
(c) between 0 and 1 (d) infinity [CBSE (F) 2015]
[(b)]
10. An economy is in equilibrium. Calculate marginal propensity to save from the following:
National income = 1,000.
Autonomous consumption = 100.
Investment expenditure = 200. [CBSE (F) 2015]
[Page 449]
11. An economy is in equilibrium. Find the investment expenditure from the following:
National income = 750.
Autonomous consumption = 200.
Marginal propensity to save = 0.4 [CBSE (F) 2015]
[Page 449, 450]
12. An economy is in equilibrium. Calculate autonomous consumption from the following:
National income = 1,250.
Marginal propensity to save = 0.2.
Investment expenditure = 150. [CBSE (F) 2015]
[Page 450]
13. In an economy investment is increased by ₹ 300 crore. If marginal propensity to consume is $\frac{2}{3}$, calculate increase in national income. [CBSE Delhi 2016]
[Page 450]
14. Suppose marginal propensity to consume is 0.8. How much increase in investment is required to increase national income by ₹ 2,000 crore? Calculate. [CBSE Delhi 2016]
[Page 450]
15. In an economy an increase in investment by ₹ 100 crore led to 'increase' in national income by ₹ 1,000 crore. Find marginal propensity to consume. [CBSE Delhi 2016]
[Page 451]
16. An economy is in equilibrium. Calculate marginal propensity to consume.
National income = 1,000
Autonomous consumption expenditure = 200.
Investment expenditure = 100. [CBSE (AI) 2016]
[Page 451]
17. An economy is in equilibrium. Find investment expenditure.
National income = 1,200.
Autonomous consumption expenditure = 150.
Marginal propensity to consume = 0.8. [CBSE (AI) 2016]
[Page 451]
18. An economy is in equilibrium. Find investment expenditure.
National income = 1,000.
Autonomous consumption = 100.
Marginal propensity to consume = 0.8. [CBSE (AI) 2016]
[Page 452]

19. Derive the two alternative conditions of expressing national income equilibrium. Show these equilibrium conditions on a single diagram. [CBSE (F) 2016]
[Page 215, 253, 254]
20. Find equilibrium national income.
Autonomous consumption expenditure = 120.
Marginal propensity to consume = 0.9.
Investment expenditure = 1,100. [CBSE (F) 2016]
[Page 452]
21. An economy is in equilibrium. Find marginal propensity to consume.
Autonomous consumption expenditure = 100.
Investment expenditure = 100.
National income = 2,000. [CBSE (F) 2016]
[Page 452, 453]
22. An economy is in equilibrium. Find autonomous consumption expenditure.
National income = 1,600.
Investment expenditure = 300.
Marginal propensity to consume = 0.8. [CBSE (F) 2016]
[Page 453]
23. An economy is in equilibrium. From the following data about an economy, calculate autonomous consumption:
(a) Income = 5,000.
(b) Marginal propensity to save = 0.2.
(c) Investment expenditure = 800. [CBSE Delhi 2017]
[Page 454]
24. An economy is in equilibrium. From the following data about an economy, calculate investment expenditure:
(a) Income = 10,000.
(b) Marginal propensity to consume = 0.9.
(c) Autonomous consumption = 100. [CBSE Delhi 2017]
[Page 454]
25. An economy is in equilibrium. From the following data, calculate autonomous consumption:
(a) Income = 10,000.
(b) Marginal propensity to save = 0.2.
(c) Investment = 1,500. [CBSE Delhi 2017]
[Page 454, 455]
26. Assuming that increase in investment is ₹ 1,000 crore and marginal propensity to consume is 0.9, explain the working of multiplier. [CBSE Delhi 2017]
[Page 228, 229]
27. Assuming that increase in investment is ₹ 800 crore and marginal propensity to consume is 0.8, explain the working of multiplier. [CBSE Delhi 2017]
[Page 228, 229]
28. Assuming that increase in investment is ₹ 900 crore and marginal propensity to consume is 0.6, explain the working of multiplier. [CBSE Delhi 2017]
[Page 228, 229]

29. If the marginal propensity to consume is greater than marginal propensity to save, the value of the multiplier will be (choose the correct alternative):

- (a) greater than 2
- (b) less than 2
- (c) equal to 2
- (d) equal to 5

[CBSE (AI) 2017]

[(a)]

30. An economy is in equilibrium. From the following data, calculate the marginal propensity to save:

- (a) Income = 10,000.
- (b) Autonomous consumption = 500.
- (c) Consumption expenditure = 8,000.

[CBSE (AI) 2017]

[Page 455]

31. When aggregate demand is greater than aggregate supply, inventories:

- (a) fall
- (b) rise
- (c) do not change
- (d) first fall, then rise

[CBSE (F) 2017]

[(a)]

32. An economy is in equilibrium. From the following data, calculate investment expenditure.

- (a) Marginal propensity to consume = 0.9.
- (b) Autonomous consumption = 200.
- (c) Level of income = 10,000.

[CBSE (F) 2017]

[Page 455]

33. In an economy, investment increased by 1,100 and as a result of it income increased by 5,500. Had the marginal propensity to save been 25 per cent, what would have been the increase in income?

[Page 456]

[CBSE (F) 2017]

34. Define investment multiplier. How is it related to marginal propensity to consume?

[Page 225]

[CBSE 2018]

35. What are the two alternative ways of determining equilibrium level of income? How are these related?

[CBSE 2018]

[Page 215, 253, 254]

36. What is ex-ante consumption? Distinguish between autonomous consumption and induced consumption.

[CBSE 2018]

[Ex-ante consumption refers to desired consumption (or planned consumption) at different levels of income in the economy.

Autonomous consumption refers to minimum level of consumption, even when income is zero. It is indicated by \bar{C} in the consumption function: $C = \bar{C} + bY$.

Induced consumption changes as the level of income changes in the economy. It is determined by the marginal propensity to consume. Thus:

$$C = \bar{C} + bY \Rightarrow \text{ex-ante consumption}$$

↑
↑

autonomous consumption
induced consumption]

37. Discuss the working of the adjustment mechanism in the following situations:

- (a) Aggregate demand is greater than aggregate supply.
- (b) Ex-ante investments are lesser than ex-ante savings.

[CBSE 2019 (58/1/1)]

[Page 220, 222]

38. If in an economy:
 Change in initial investments (ΔI) = ₹ 500 crore.
 Marginal propensity to save (MPS) = 0.2.
 Find the values of the following:
 (a) Investment multiplier (K).
 (b) Change in final income (ΔY). [CBSE 2019 (58/1/1)]
 [Page 456]
39. If in an economy:
 Change in initial investments = ₹ 700 crore.
 Marginal propensity to save (MPS) = 0.2.
 Find the values of the following:
 (a) Investment multiplier (K).
 (b) Change in final income (ΔY). [CBSE 2019 (58/1/2)]
 [Page 457]
40. If in an economy:
 Change in initial investment = ₹ 1,200 crore.
 Marginal propensity to save (MPS) = 0.2.
 Find the values of:
 (a) Investment Multiplier (K).
 (b) Change in final income (ΔY). [CBSE 2019 (58/1/3)]
 [Page 457]
41. State the meaning of ex-ante savings. [CBSE 2019 (58/2/1)]
 [Page 215]
42. Discuss the adjustment mechanism in the following situations:
 (a) Aggregate demand is lesser than aggregate supply.
 (b) Ex-ante investments are greater than ex-ante savings. [CBSE 2019 (58/2/1)]
 [Page 220, 222]
43. Calculate change in final income, if marginal propensity to consume (MPC) is 0.8 and change in initial investment is ₹ 1,000 crore. [CBSE 2019 (58/2/1)]
 [Page 457]
44. Estimate the change in initial investment if marginal propensity to save (MPS) is 0.10 and change in final income is ₹ 15,000 crore. [CBSE 2019 (58/2/2)]
 [Page 457, 458]
45. Estimate the change in final income if marginal propensity to consume (MPC) is 0.75 and change in initial investment is ₹ 2,000 crore. [CBSE 2019 (58/2/3)]
 [Page 458]
46. State the following statement as true or false. Give valid reasons.
 According to Keynesian theory of employment, ex-ante savings and ex-post savings are always equal. [CBSE 2019 (58/3/2)]
 [False. Ex-ante savings are those savings which people intend to make in the economy during the period of one year. Ex-post savings refer to actual savings in the economy during the period of one year. So, the two may or may not be equal.]

47. Describe the adjustments that may take place in an economy when ex-ante savings are less than ex-ante investments. [CBSE 2019 (58/4/1)]

Or

Describe the adjustment mechanism, if in an economy, the planned savings are lesser than the planned investments. [CBSE 2019 (58/5/2)]

[Page 222]

48. Describe the adjustments that may take place in an economy when ex-ante aggregate demand is greater than ex-ante aggregate supply. [CBSE 2019 (58/4/2)]

[Page 220]

49. Describe the adjustments that may take place in an economy when ex-ante savings are greater than ex-ante investments. [CBSE 2019 (58/4/3)]

Or

Describe the adjustment mechanism, if in an economy the planned savings are more than the planned investments. [CBSE 2019 (58/5/1)]

[Page 222]

50. What is meant by the “Effective Demand Principle” in Keynesian theory of employment? Discuss using a schedule or a diagram. [CBSE 2019 (58/4/1)]

[Page 254]

51. Describe the adjustment mechanism if ex-ante aggregate demand is lesser than ex-ante aggregate supply. [CBSE 2019 (58/5/3)]

[Page 220]

52. Discuss briefly the relationship between marginal propensity to save and investment multiplier, using a hypothetical numerical example. [CBSE 2019 (58/5/1)]

[Page 225, 226]

53. The saving function of an economy is given as:

$$S = -25 + 0.25Y$$

If the planned investment is ₹ 200 crore, calculate the following:

- (i) Equilibrium level of income in the economy.
- (ii) Aggregate demand at income of ₹ 500 crore.

[CBSE 2019 (58/5/1)]

[Page 458]

54. The saving function of an economy is given as:

$$S = (-) 10 + 0.20Y$$

If the ex-ante investments are ₹ 240 crore, calculate the following:

- (i) Equilibrium level of income in the economy.
- (ii) Additional investments which will be needed to double the present level of equilibrium income.

[CBSE 2019 (58/5/2)]

[Page 458, 459]

55. The saving function of an economy is given as:

$$S = (-) 50 + 0.10Y$$

If the ex-ante investments are ₹ 450 crore, calculate the following:

- (i) Equilibrium level of income in the economy.
- (ii) Additional investments which will be needed to gain an additional income level of ₹ 3,000 crore.

[CBSE 2019 (58/5/3)]

[Page 459]

6. NCERT Questions (With Hints to Answers)

1. What is the difference between ex-ante investment and ex-post investment?

[Hint: Ex-ante investment refers to 'desired (or planned) investment' corresponding to different income levels in the economy. Ex-post investment refers to 'actual investment' in the economy during the period of one year.]

2. Measure the level of ex-ante aggregate demand when autonomous investment and consumption expenditure (A) is ₹ 50 crore, and MPS is 0.2 and level of income (Y) is ₹ 4,000 crore. State whether the economy is in equilibrium or not (cite reasons).

[Hint: We know that,

$$AD = C + \bar{I}$$

Or,

$$AD = \bar{C} + MPC(Y) + \bar{I}$$

Or,

$$AD = \bar{C} + \bar{I} + MPC(Y)$$

$$= 50 + 0.8(4,000) \quad [MPC = 1 - MPS = 1 - 0.2 = 0.8]$$

$$= 50 + 3,200$$

$$= ₹ 3,250 \text{ crore}$$

$$Y = AS = ₹ 4,000 \text{ crore}$$

Since, $AS > AD$, the economy is not in the equilibrium.

Note: In the context of equilibrium GDP, all investment is considered as autonomous investment.]

7. Miscellaneous Questions and Reference to the Text for Answers

A. Questions of 3 & 4 marks each

1. Briefly explain the concept of equilibrium output. [Page 214]
2. What are the basic assumptions of Keynes theory? [Page 222]
3. Explain the concepts of ex-ante saving and ex-ante investment. [Page 215]
4. Explain the concepts of ex-post saving and ex-post investment. [Page 215]
5. Equality between AS and AD implies the equality between S and I. Write equations to prove this fact. [Page 215, 253, 254]
6. What is meant by investment multiplier? Explain with the help of a suitable example. [Page 225]
7. Explain the relationship between marginal propensity to consume and investment multiplier. [Page 225]
8. What do you mean by forward action and backward action of multiplier? Explain with the help of a suitable example. [Page 229, 230]
9. Explain the meaning of investment multiplier. What can be its minimum value and why? [Page 225]

B. Questions of 6 marks each

1. Explain the theory of determination of equilibrium level of output and income with the help of aggregate demand and aggregate supply curves. [Page 216–219]
2. Explain the determination of equilibrium level of income using 'saving-investment' approach. Use diagram. [Page 220–222]
3. Explain the equilibrium level of income with the help of Consumption + Investment (C + I) curve. If planned saving is greater than planned investment, what adjustments will bring about equality between the two? [Page 216–219, 222]

4. In an economy planned investment exceed planned savings. How will the equality between the two be achieved? Explain. [Page 222]
5. Why must aggregate demand be equal to aggregate supply at the equilibrium level of income and output? Explain with the help of a diagram. [Page 216–220]
6. Define investment multiplier. What is the relationship between investment multiplier and marginal propensity to consume? [Page 225]
7. Explain the working of investment multiplier with the help of a numerical example. [Page 228, 229]
8. Explain with the help of numerical example how an increase in investment in an economy affects its level of income. [Page 226–229]
9. In poor countries like India, people spend a high percentage of their income so that APC and MPC are high. Yet, value of the multiplier is low. Why?

[Hint: Working of the multiplier process is based on one fundamental assumption: that there exists excess capacity in the economy, so that whenever consumption expenditure rises (implying increase in demand) there is a corresponding increase in production (implying increase in income). But poor countries like India, lack in production capacity. Accordingly, whenever demand increases (in terms of increase in consumption expenditure), there is increasing pressure of demand on the existing output (implying inflation or rise in prices) rather than the increase in output or income.]

DOs and DON'Ts

1. Equilibrium level of income (where $AS = AD$, or $S = I$) is determined primarily by the level of AD, because AS is assumed to be perfectly elastic. But, do remember, that a situation of **any divergence disequilibrium** (a situation when $AS > AD$ or $AS < AD$) is corrected only through changes in AS. [Revisit Page 220 for details.]
2. **You must understand that** multiplier is not related to APC (average propensity to consume). Instead, it is related to MPC (marginal propensity to consume). Why? Because, multiplier shows change in income as a result of change in investment and MPC shows change in consumption as a result of change in income. Accordingly, it is MPC which is related to the concept of multiplier, not the APC (which just shows the ratio between total consumption and total income).
3. Increase in C is an injection into the circular flow of income. But, only when increase in C is not related to increase in Y. An injection occurs when there is increase in C for reasons other than the increase in Y. So that, there is an upward shift in consumption function which leads to an upward shift in AD function. Accordingly, the economy shifts to a higher level of equilibrium GDP.

Increase in C because of increase in Y does not cause a shift in C-function. It only causes a movement along the C-function.



• Simultaneous Equality between AS and AD as well as between S and I

The following figure shows simultaneous equality between AS and AD, as well as between S and I.

Equilibrium is attained at point E when $AS = AD$, as in Fig. 8(A), and at point E* when $S = I$, as in Fig. 8(B).

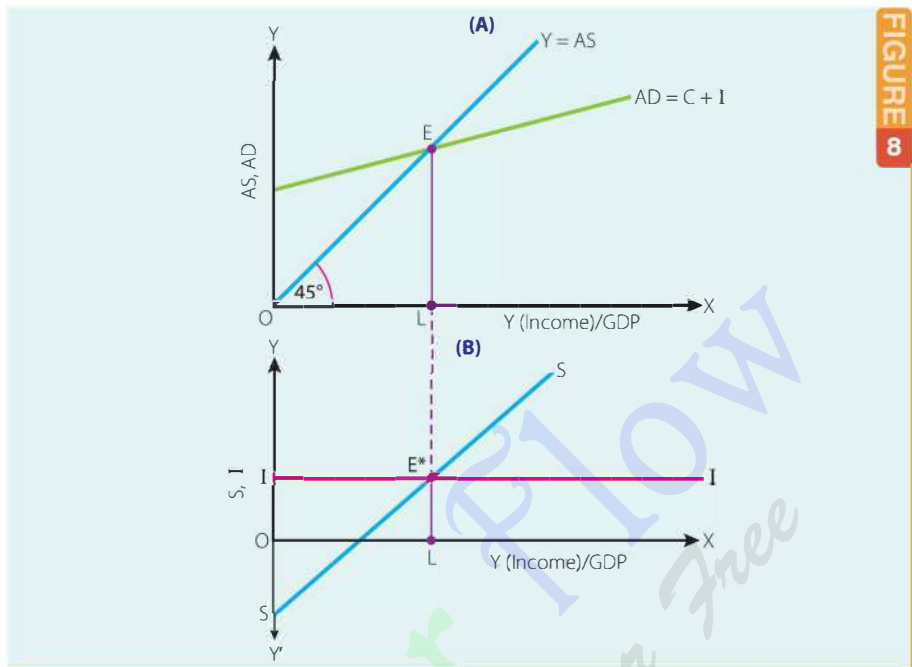


FIGURE 8

Equality between AS and AD at a point E (in Fig. 8(A)) implies the equality between S and I at point E* (in Fig. 8(B)). There is one and only one equilibrium GDP when $AS = AD$ or when $S = I$. In either case, the equilibrium $GDP = OL$.

OL is the equilibrium level of income. It is to be noted that the equality between AS and AD implies the equality between S and I; and equality between S and I implies the equality between AS and AD. Accordingly, there is one and only one level of equilibrium income when $AS = AD$, and $S = I$.

- **Concept of AED (Aggregate Effective Demand)**

AED refers to that level of AD where $AS = AD$. Thus, AED always corresponds to the equilibrium level of income in the economy. It is called 'effective' as it is this level of AD which actually determines the equilibrium between AS and AD; AS just coincides with AD, because AS is assumed to be perfectly elastic.

Check Fig. 9 for further illustration.

AD function shows different levels of aggregate demand. But it is only at point E that $AS = AD$. At point E, level of aggregate demand = EL. Hence, EL is aggregate effective demand, which is effective in striking an equilibrium between AS and AD.

As regards a schedule indicating AED, students are advised to see Table 1, page 218. In this table, $AED = 100$, where $AD = C + I$ and the economy is in a state of equilibrium.

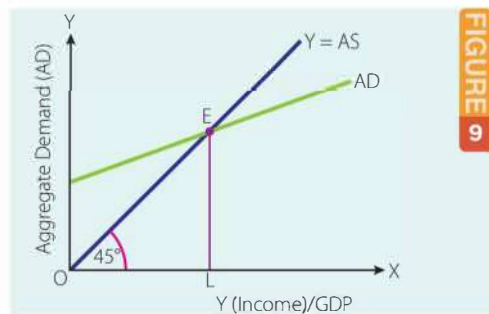


FIGURE 9

- E is the point of equilibrium where $AS = AD$.
- EL is the level of demand where AS coincides with AD, and the equilibrium GDP is achieved.
- EL, therefore, is AED (aggregate effective demand).



PROBLEM OF DEFICIENT DEMAND AND EXCESS DEMAND

TO DO

- *Some Essential Concepts:*
 - Full Employment Equilibrium and Underemployment Equilibrium*
 - Voluntary and Involuntary Unemployment*
 - Full Employment and Natural Unemployment*
- *Problem of Deficient Demand*
- *Problem of Excess Demand*
- *Measures to Correct Deficient and Excess Demand*

I. SOME ESSENTIAL CONCEPTS

Knowledge of some concepts is essential before we take up a detailed description of the problem of deficient demand and excess demand. These concepts are: (1) full employment & underemployment equilibrium, (2) voluntary & involuntary unemployment, and (3) full employment & natural unemployment.

(1) Full Employment Equilibrium and Underemployment Equilibrium

Equilibrium is struck when $AD = AS$ or when $S = I$. But, it need not necessarily correspond to the situation of full employment (when resources are fully utilised) in the economy. AD and AS may be equal even when resources are not fully utilised or when there is unemployment in the economy. Here is an illustration: Let us assume that fuller utilisation of the resources leads to output worth 10 billion US dollars during an accounting year. But, the producers may plan output and the households may plan expenditure on output worth 8 billion US dollars only. So that, resources worth 2 billion US dollars of output remain unutilised. But, the equilibrium is

struck simply because planned output (AS) and planned expenditure on output (AD) are equal (= 8 billion US dollars). Thus, we can think of two possible situations of equilibrium: (i) full employment equilibrium, and (ii) underemployment equilibrium. **Full employment equilibrium** is struck when planned AS = planned AD along with fuller utilisation of the resources. With reference to the above illustration, **full employment equilibrium** is struck when planned AS = planned AD = 10 billion US dollars. **Underemployment equilibrium** is struck when planned AS = planned AD but resources are still not fully utilised; so that, there is excess capacity in the economy. With reference to the above illustration, underemployment equilibrium is struck when planned AS = planned AD = 8 billion US dollars.



Full employment equilibrium refers to that situation in the economy when $AS = AD$ (or $S = I$) along with fuller utilisation of resources. So that there is no excess capacity or unemployment in the economy.

Underemployment equilibrium refers to that situation in the economy when $AS = AD$ (or $S = I$) but without fuller utilisation of resources. Accordingly, there is unutilised capacity or excess capacity (or unemployment) in the economy even in a state of equilibrium.

(2) Voluntary and Involuntary Unemployment

Voluntary unemployment refers to a situation when people choose to remain unemployed, even when jobs are available. They may not be willing to work at all, or not willing to work at the existing wage rate.

Voluntary unemployment occurs when some people are not willing to work at all, or are not willing to work at the existing wage rate.

Involuntary unemployment refers to the situation when some people are not getting work, even when they are willing to work at the existing wage rate. It is a situation when AD is not enough to induce fuller utilisation of the existing resources. Accordingly, planned output is lower than the potential output (full employment output). There is excess capacity in the economy, and some people are forced to remain unemployed.

Problem of unemployment refers to the problem of involuntary unemployment, not the problem of voluntary unemployment. If all those who are willing to work (and able to work) at the existing wage rate are getting work, the economy would be deemed to be in a state of full employment even when there is voluntary unemployment in the economy.

Involuntary unemployment occurs when some people are not getting work, even when they are willing to work at the existing wage rate. The economy fails to create enough jobs because planned output is lower than the potential output (full employment output), owing to lack of AD.

(3) Full Employment and Natural Unemployment

Full employment refers to a situation when all those who are able to work and are willing to work (at the existing wage rate) are getting work. It is a situation when, corresponding to a given wage rate, demand for labour = supply of labour, and the labour market is cleared (it is in a state of equilibrium).

Full employment occurs when $S_L = D_L$ corresponding to a given wage rate, so that labour market is cleared and it is in a state of equilibrium.

Situation of Full Employment does not mean a Situation of Zero (Involuntary) Unemployment

Students of economics must carefully note that in the economy, a situation of full employment never implies a situation of '**zero (involuntary) unemployment**'. There always exists some degree of unemployment, called '**natural unemployment**'. This occurs owing to the fact that there are constant changes in the supply-demand parameters in the economy, and adjustment to these changes takes time. While adjustments are occurring, some people continue to remain unemployed. This is a situation of 'frictional and structural' unemployment in the economy.

Full employment does not mean a situation of zero unemployment. Owing to constantly changing supply-demand parameters in the economy (and the fact that adjustment to these changes takes time), there always exists some frictional and structural unemployment. **The minimum rate of unemployment that must always exist in the economy is called natural rate of unemployment.**

Frictional Unemployment

In the words of Gardner, "**Frictional unemployment is the unemployment associated with the changing of jobs in dynamic economy.**" It arises due to immobility of labour, shortage of raw material, lack of information regarding opportunities of employment, shortage of power, wear and tear of machines, tendency of the workers to move from one job to the other, etc.

Structural Unemployment

In the words of **Gardner**, "Structural unemployment is the unemployment that results from the long-term decline of certain industries." It is associated with the structural changes in the economy due to these situations:

- (i) when other factors of production (other than labour) are in short supply,
- (ii) when labourers lack expertise for new emerging industries, and
- (iii) when there is change in the production technique.

HOTS

Q. What is natural rate of unemployment?

Ans. It refers to the rate of unemployment which always exists in the economy even when labour market is in a state of equilibrium. It occurs due to:

- (i) frictional changes (changes related to shifting from one job to the other), and
- (ii) structural changes (changes related to new production technology).

Frictional changes lead to frictional unemployment, while structural changes lead to structural unemployment.

2. PROBLEM OF DEFICIENT DEMAND

(I) Concept of Deficient Demand

Deficient demand means deficiency of AD. Demand is said to be 'deficient' when it is lower than what is required for the fuller utilisation of resources. Or, AD is deficient when it does not permit fuller utilisation of production capacity. Or, AD is deficient when there is excess capacity in the economy (implying underutilisation of resources). According to **Keynes**, AD is deficient when it is less than AS corresponding to full employment in the economy.

Deficient Demand:

$AD < AS$ (corresponding to full employment in the economy)

Or

AD falls short of its full employment level

(2) Measurement of Deficient Demand: Diagrammatic Illustration

Fig. 1 reflects measurement of deficient demand.

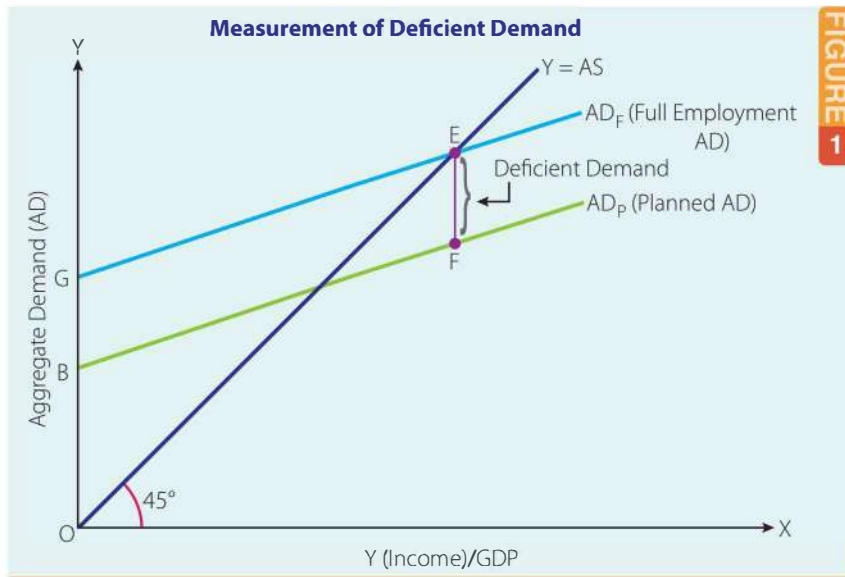


FIGURE 1

In Fig. 1:

- AD_F line shows the required level of AD for full employment in the economy.
- AD_P line shows planned AD which is lower than the full employment AD.
- The vertical difference between AD_F and $AD_P = EF$
= Deficient demand.

(3) Causes of Deficient AD

In a two sector closed economy, deficiency of AD occurs largely due to two factors:

- (i) **Reduction in Private Consumption Expenditure (C):** Private consumption expenditure is an important component of AD. Reduction in private consumption expenditure causes a serious deficiency in AD. Private consumption expenditure may reduce owing to several reasons. However, the most important is reduction in propensity to consume or increase in propensity to save. In advanced economies, MPS tends to rise when consumption reaches its peak.
- (ii) **Reduction in Private Investment Expenditure (I):** Private investment expenditure is the other important component of AD. It may reduce in situations of poor business expectations. It has happened in all market economies of the world in the year 2015-16.

In a four sector open economy, the following factors may also contribute to the deficiency of AD:

- (i) **Reduction in Government Expenditure (G):** The government may cut its consumption expenditure or investment expenditure. This may be because of the budgetary constraints of the government. A cut in government consumption expenditure or investment expenditure leads to a cut in AD.
- (ii) **Decline in Exports (X):** We know, exports are an important component of AD. A fall in exports implies a fall in expenditure on the domestically produced goods and services. This leads to a fall in AD.
- (iii) **Rise in Imports (M):** Imports may rise when international prices are lower than the domestic prices. Imports are a negative component of AD. Accordingly, a rise in imports leads to a fall in AD.
- (iv) **Increase in Tax Rates:** Increase in tax rates leaves lesser disposable income with the people. It reduces their capacity to spend, even when their propensity to spend remains the same. Lower disposable income means lower level of AD.

Briefly, we can say that the deficiency of demand is a situation when planned AD is lower than its full employment level. It is indicated by a downward shift in AD function. The possible reasons are: (i) a reduction in C, (ii) a reduction in I, (iii) a reduction in G, (iv) a reduction in X, (v) a rise in M, and (vi) increase in taxation.

Deficiency of demand occurs when C, I, G and X components of AD tend to fall, or when M component of AD tends to rise. It is indicated by a downward shift in AD from its full employment.

(4) Consequences of Deficient AD: Four Critical Situations in the Economy

Deficient AD leads to four critical situations in the economy, as under:

(i) Underemployment Equilibrium

Deficient demand leads to underemployment equilibrium.

Owing to the deficiency of AD, producers are not able to fully utilise their resources (production capacity). Planned output remains less than the potential output (output corresponding to fuller utilisation of resources). Accordingly, underemployment equilibrium is struck in the economy.

Owing to deficiency of demand, equilibrium between AS and AD is struck at a lower level of GDP, lower than the full employment level. This is called underemployment equilibrium.

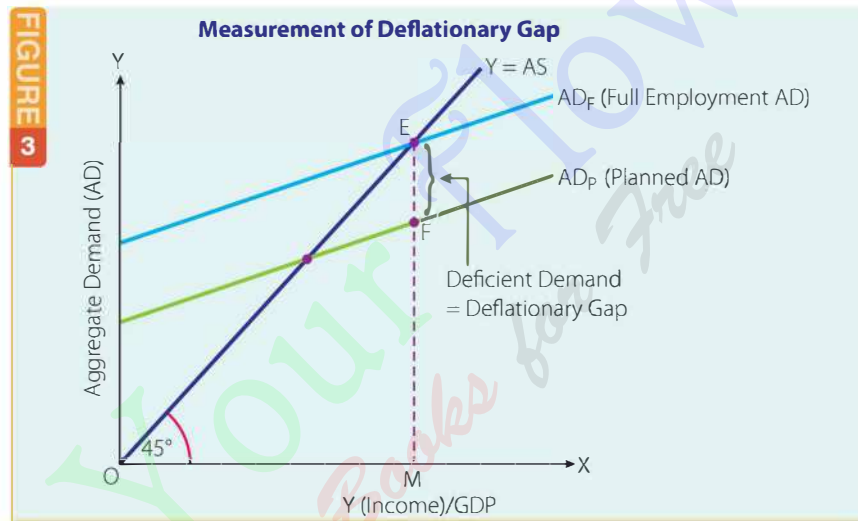
Measurement of Deflationary Gap

Deflationary gap is measured in terms of deficiency of demand. We can say that:

$$\text{Deflationary Gap} = \text{Deficiency of AD}$$

Deflationary gap is measured as the difference between 'AD corresponding to full employment' and 'planned AD which is lower than the full employment AD'.

Fig. 3 illustrates this situation.



In Fig. 3:

$$\begin{aligned} \text{Deflationary Gap} &= \text{Deficient demand} \\ &= EF \end{aligned}$$

(iii) Undesired Stocks

In a situation of low AD, producers are not able to sell all that they plan to sell (or wish to sell). Accordingly, undesired stocks tend to pile up.

Clearance of undesired stocks often lead to: (a) fall in prices, and (b) fall in planned output for the year ahead. Both these factors contribute to deflationary spiral in the economy.

(iv) Loss of Profits

Deficiency of AD causes loss of profits. This happens because: (a) producers are not able to clear their stocks, and (b) undesired stocks lead to 'price crash'.

Briefly, deficiency of demand hurts business expectations. Low business expectations (or bearish business expectations) lead to low investment, and low level of income and employment. Overall level of economic activity reduces and the economy is caught in a 'low level equilibrium trap', where low demand leads to low income and low income leads to low demand.

3. PROBLEM OF EXCESS DEMAND

(1) Concept of Excess Demand

Excess demand means excess of AD. Demand is said to be 'excess' when it is more than what is required for the fuller utilisation of resources. According to **Keynes**, AD is excess when it is more than AS corresponding to full employment in the economy.

Excess Demand:

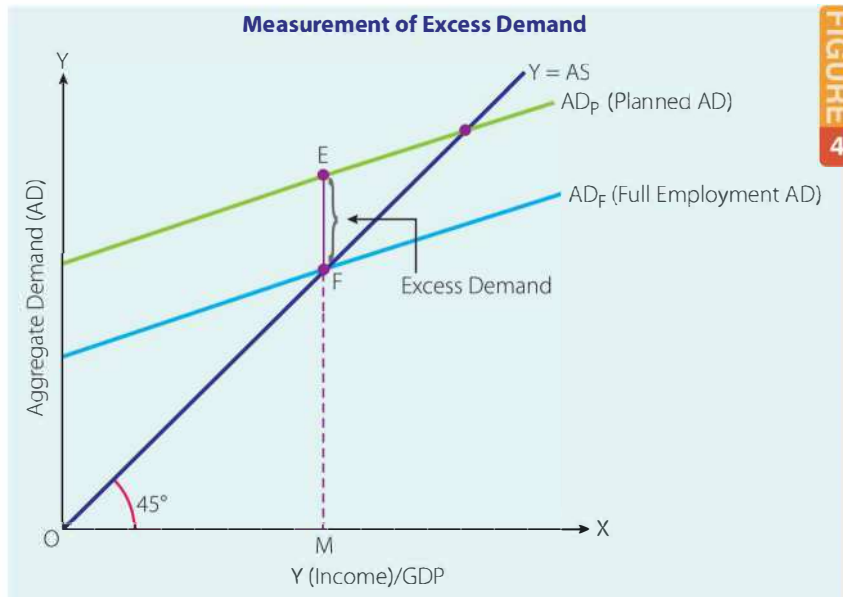
$AD > AS$ (corresponding to full employment in the economy)

Or

AD crosses its full employment level

(2) Measurement of Excess Demand: Diagrammatic Illustration

Fig. 4 reflects measurement of excess demand.



In Fig. 4:

- AD_F line shows the required level of AD for full employment in the economy.
- AD_P line shows planned AD which is higher than the full employment AD.
- The vertical difference between AD_P and $AD_F = EF$
= Excess demand.

(3) Causes of Excess AD

Causes of excess demand are almost opposite to those of deficient demand. Briefly, there are two principal causes of excess AD in a two sector closed economy:

- (i) Increase in private consumption expenditure (C) which may occur owing to increase in propensity to consume or decrease in propensity to save. In countries like India, propensity to consume has tended to rise owing to a high degree of **demonstration effect**. The poor try to spend more to live like the rich.
- (ii) Increase in investment expenditure (I), which may occur owing to bullish business expectations. (Business expectations are 'bullish' when the producers expect high returns from their investment. Business expectations are 'bearish' when the producers do not expect high returns from their investment.)

In an open economy with government, there are following additional causes of excess AD:

- (i) Increase in government expenditure (G), owing to its expanding commitments for the development as well as welfare projects in the economy.
- (ii) Increase in exports (X), owing to lower domestic prices in relation to international prices.
- (iii) Decrease in imports (M), owing to higher international prices compared with domestic prices.
- (iv) A cut in tax rates leaving higher disposable income with the people.

(4) Consequences of Excess AD:

Three Critical Situations in the Economy

Excess demand leads to three critical situations in the economy, as under:

(i) Inflationary Gap

Excess demand causes 'inflationary gap' in the economy. In a situation of excess demand, the level of output does not rise. In fact, it cannot rise because factors are already fully employed (and technology is assumed to remain constant). **Output level remains constant corresponding to full employment.** On the other hand, excess demand generates pressure of demand on the existing resources. Accordingly, cost of production tends to rise, which leads to a rise in the general price level in the economy. **Keynes** identifies this situation as a situation of 'inflationary gap' in the economy.

Excess AD → Pressure of demand on the existing resources → Rise in cost of production → Rise in general price level → Output level remains constant because resources are already fully employed.

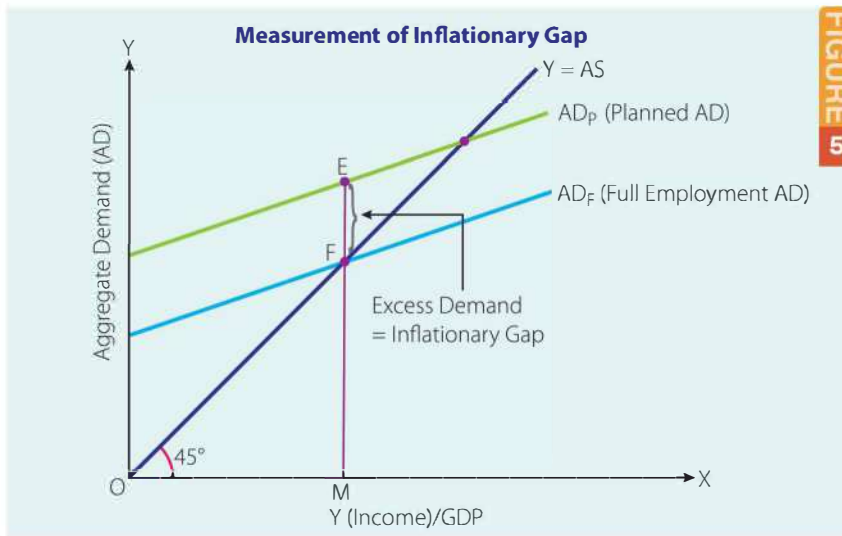
Measurement of Inflationary Gap

Inflationary gap is measured in terms of 'excess demand'. We can say that:

$$\text{Inflationary Gap} = \text{Excess demand (or Excess AD)}$$

Inflationary gap is measured as the difference between 'planned AD which is beyond full employment level' and 'AD that corresponds to full employment'.

Fig. 5 illustrates this situation.



In Fig. 5:

$$\begin{aligned} \text{Inflationary Gap} &= \text{Excess demand} \\ &= EF \end{aligned}$$

(ii) Static GDP

Even when the level of AD is higher than its full employment level, the level of GDP does not rise. It remains static. It is a situation when higher demand fails to generate higher GDP in the economy. This is because resources are already fully employed: there is no excess capacity in the economy. Fig. 6 offers diagrammatic illustration of excess demand and static GDP.

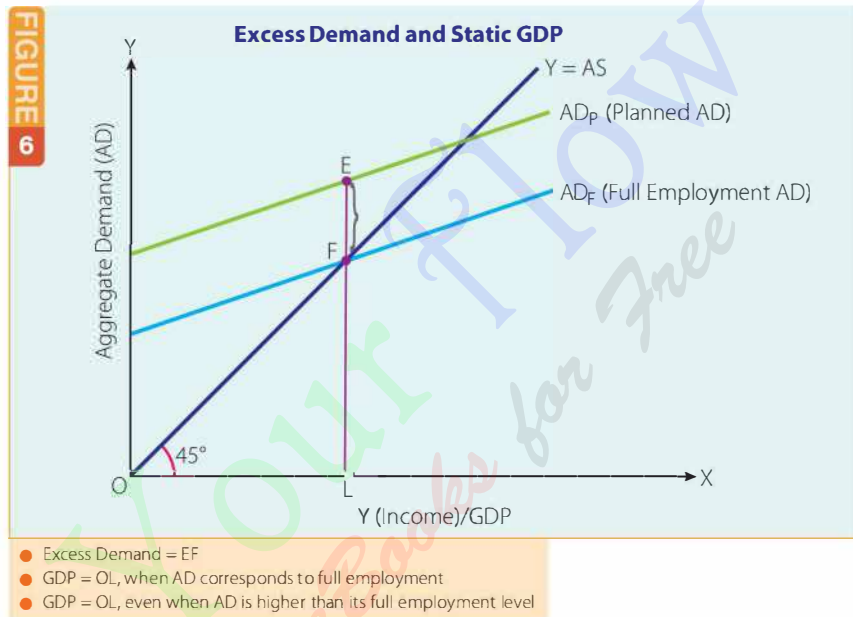


Fig. 6 shows that the equilibrium GDP remains constant (= OL), and at full employment level, even when AD shifts from AD_F to AD_P . Thus, GDP remains unimpacted by excess demand.

Here, comes an important observation:

When we say that GDP remains constant, we are referring to real GDP, not the nominal GDP. In other words, we are referring to GDP at constant prices, not GDP at current prices. The fact that excess demand leads to a rise in the general price level implies that GDP at current prices will rise. Thus, in a situation of excess demand, quantum of goods and services produced in the economy remains constant, though the market value of goods and services (at the current prices) tends to rise.

In a situation of excess demand, quantum of goods and services produced in the economy remains constant, though the market value of goods and services (at the current prices) tends to rise.

(iii) Excess Demand and Wage-Price Spiral

Excess demand leads to a wage-price spiral in the economy. It is a situation when wages catch prices and prices catch wages. Accordingly, the economy may be driven to a situation of hyper inflation (inflation of very high magnitude).

This is how the wage-price spiral operates:

- Owing to excess demand, there is pressure of demand on the existing resources. Consequently, cost of production (wages in particular) tends to rise.
- Rise in wages (and the cost of production) leads to a rise in the general price level.
- Rise in prices leads to a rise in cost of living.
- Rise in cost of living leads to rise in wages again.

Thus, wages catch prices, and prices catch wages. This spiral, if turns into hyper inflation, becomes a serious threat to economic stability.

(iv) Loss of Profit

Like deficient demand, excess demand also causes loss of profit. Profit is lost, because (owing to the lack of excess capacity), the producers are not able to raise their supplies. In other words, **there is a loss of profit owing to unfulfilled demand in the economy.**

Briefly, excess demand is not virtuous, but vicious. It generates inflationary spiral in the economy. Devoid of any rise in GDP, excess AD generates pressure of demand on the existing resources. Accordingly, cost of production (particularly wage rate) rises. Rise in cost leads to rise in prices. The economy is caught in the 'wage-price spiral', a challenge to stability of the economy.

Inflationary Gap and Deflationary Gap—The Difference

Inflationary Gap	Deflationary Gap
(i) It is the excess of AD over and above its level required to maintain full employment equilibrium in the economy.	(i) It is the deficiency of AD from the level required to maintain full employment equilibrium in the economy.
(ii) It occurs when $AD > AS$, corresponding to full employment level.	(ii) It occurs when $AD < AS$, corresponding to full employment level.
(iii) Level of output is constant at full employment.	(iii) Level of output is less than that at full employment.
(iv) There is no unemployment or underemployment in the economy.	(iv) There is unemployment or underemployment in the economy.
(v) It leads to wage-price spiral: wages catch prices and prices catch wages, while GDP remains constant.	(v) It leads to low level equilibrium trap: low AD leads to low income, and low income leads to low AD.

Q. 1. How does propensity to consume affect AD-function?

Ans. Increase in the propensity to consume causes an upward shift in the AD-function (through an upward shift in the C-function). On the other hand, decrease in the propensity to consume causes a downward shift in AD-function (through a downward shift in C-function).

Q. 2. According to Keynes, price level rises only after full employment. Why?

Ans. Price level does not rise before full employment, because AS is assumed to be perfectly elastic. Prior to full employment, AS tends to rise proportionate to any rise in AD. Accordingly, price level remains constant. But after full employment is reached, AS stops rising in response to a rise in AD. Accordingly, price level tends to rise.

4. MEASURES TO CORRECT DEFICIENT AND EXCESS DEMAND: FISCAL AND MONETARY POLICIES

Economic stability requires that the situations of excess demand and deficient demand are corrected as fast as possible. Who does it? The government does it through its revenue-expenditure policy (Fiscal Policy), and the Central Bank (RBI) does it through its monetary policy. This brings us to the discussion of fiscal and monetary policies. Let us understand how these policies are used to combat inflationary gap (related to excess demand) and deflationary gap (related to deficient demand).

Fiscal Policy (Fiscal Measures)

Fiscal policy refers to revenue and expenditure policy of the government. It is also called Budgetary Policy of the government. It focuses on stability of the economy by correcting the situations of excess demand (inflationary gap) and deficient demand (deflationary gap).



Fiscal policy refers to budgetary policy of the government (or revenue and expenditure policy of the government) to correct the situations of excess and deficient demand in the economy with a view to achieve the twin objective of 'growth with stability'.

Components of Fiscal Policy and the Way these are Used

Following are the principal components of fiscal policy. Along with each component, we are describing the way it is used to correct the situations of excess and deficient demand.

(1) Government Expenditure

It is the principal component (or principal instrument) of fiscal policy. The government of a country incurs various types of expenditure, mainly:

- (i) Expenditure on public works programmes such as the construction of roads, dams, bridges, etc.
- (ii) Expenditure on education and public welfare programmes.
- (iii) Expenditure on the defence of the country and the maintenance of law & order.
- (iv) Expenditure on various types of subsidies to the producers with a view to encourage production.

It is by changing any or all types of expenditure that the government seeks to correct the situations of excess demand or deficient demand in the economy. When there is excess demand, government expenditure is reduced, and when there is deficient demand, government expenditure is increased. A rise in government expenditure acts as an 'injection' into the circular flow of income in the economy. It is required when liquidity needs to be released to combat deflation. Likewise, a cut in government expenditure acts like a 'withdrawal' from the circular flow of income in the economy. It is required when liquidity needs to be soaked to combat inflation.

(2) Taxes

Taxes are a compulsory payment made to government by the household.

By increasing the tax burden on the households, the government reduces their disposable income. Accordingly, AD is reduced or excess demand is managed. On the other hand, by lowering the tax burden, the government increases disposable income of the households. Accordingly, AD is raised and deficient demand is managed.

(3) Public Borrowing/Public Debt

By borrowing from the public, the government creates public debt. In a situation of deficient demand (or when AD needs to be increased), the government reduces its borrowing from the public. So that people are left with greater liquidity (or cash balances) and aggregate expenditure remains high. On the other hand, when there is a situation of excess demand (or when AD needs to be reduced), the government steps up public borrowing by offering attractive rate of interest. This reduces liquidity with the people. Accordingly, aggregate expenditure also reduces and excess demand is managed.

(4) Borrowing from RBI (the Central Bank)

Borrowing by the government from the RBI is another element of fiscal policy. It is increased to fight deflationary gap, and reduced to fight inflationary gap. Higher borrowing releases greater liquidity in the economy, as required to correct deflationary gap (deficient demand). When borrowing is reduced, the amount of liquidity in the economy is also reduced, as desired to correct inflationary gap (excess demand) in the economy.

HOTS

Q. What fiscal measures would you recommend to correct deficient demand?

Ans. Following fiscal measures are recommended to correct deficient demand:

- (i) The government should step up its expenditure [on (a) public works programmes, (b) education and public welfare, (c) subsidies to the producers, and (d) defence and law & order]. Higher government expenditure acts like an injection into the circular flow of income in the economy.
- (ii) The government should reduce tax burden on the households, so that they are left with greater cash balances. Higher cash balances with the people lead to higher level of AD.
- (iii) The government should raise more funds from the RBI so that there is a greater flow of liquidity in the economy. Higher liquidity implies higher level of AD.
- (iv) The government should plan a cut in public borrowing, so that, people are left with greater liquidity (or cash balances). Greater cash balances implies higher AD.

Briefly, deficient demand is corrected when the government steps up its own expenditure and ensures that cash balances with the people are raised.

[**Note:** Students are advised to write just an opposite answer in case the question relates to excess demand.]

Monetary Policy (Monetary Measures)

We have already described the components of monetary policy and the way these are used to correct the situations of excess demand (inflationary gap) and deficient demand (deflationary gap) in the economy in chapter 6. Here, we present a brief summary of that description. Application of monetary instruments to correct excess demand and deficient demand is discussed separately, as under:

Application of Monetary Instruments to Correct the Situation of Excess Demand

- **Bank rate and repo rate are raised by the RBI.** As a follow-up action, market rate of interest is raised by the commercial banks. Cost of borrowing rises. It lowers the demand for credit leading to a cut in consumption and investment expenditure in the economy. Implying a cut in AD, as desired to curb excess demand or inflationary gap.

- **Reverse repo rate is raised by the RBI.** This induces the commercial banks to park their surplus funds with the RBI. Accordingly, lesser funds are used as CRR-deposits for the creation of credit. Availability of credit is reduced. It leads to a cut in AD. Excess demand or inflationary gap is curbed.
- **Pursuing the policy of open market operations.** Securities are sold by the RBI to soak liquidity. Accordingly, cash reserves of the commercial banks are reduced, implying a cut in their credit creation capacity. When the availability of credit reduces, AD shrinks. Accordingly, excess demand is corrected.
- **CRR is raised to lower credit creation capacity of the commercial banks.** Lesser availability of credit causes a fall in AD. Accordingly, excess demand is corrected.
- **SLR (Statutory Liquidity Ratio) is raised.** It gives a warning signal to the commercial banks to maintain healthy cash reserves with themselves. Lesser funds are parked with RBI as CRR reserves. Supply of credit is reduced and AD is lowered. Excess demand is corrected.
- **Margin requirement** (minimum down payment that a borrower is required to make as a percentage of his loan from the commercial banks) is raised to restrict the availability of credit. Accordingly, AD is reduced and excess demand is corrected.
- **Moral pressure is exerted by the RBI** on the commercial banks to be selective and strict in lending when AD needs to be curbed to correct the situation of excess demand or inflationary gap.
- **Credit rationing is introduced**, prescribing credit limits for different sectors of the economy. This restricts the availability of credit. Accordingly, AD is lowered and excess demand is corrected.

Briefly, **dear money policy is pursued to curb excess demand.** This policy reduces the availability of credit and increases the cost of credit. Lower demand for credit leads to a fall in AD, implying the correction of excess demand.

Application of Monetary Instruments to Correct the Situation of Deficient Demand

In a situation of deficient demand, AD needs to be raised. The RBI pursues cheap money policy. Availability of credit is raised and cost of credit is lowered. It is achieved by using the monetary instruments exactly the opposite way these are used in a situation of excess demand or inflationary gap. Avoiding repetition, we may state that (for the correction of deficient demand), the availability of credit

is raised and the cost of credit is lowered through the following monetary actions by the RBI:

- Bank rate and repo rate are lowered. Accordingly, cost of credit is reduced and availability of credit is increased.
- Reverse repo rate is lowered, so that the commercial banks are not induced to park their funds with the RBI to generate interest income. Instead, they are prompted to use their funds for the creation of credit.
- Securities are purchased to inject liquidity into the system. The banks are left with more cash for the creation of credit.
- CRR is lowered to increase the supply of credit.
- SLR is lowered to enhance credit creation capacity of the commercial banks.
- Margin requirement is lowered to raised the availability of credit.
- Moral pressure is built on the commercial banks to be liberal in lending.
- Credit rationing, if already in force, is withdrawn to enhance the availability of credit.

Thus, RBI makes every effort to increase the supply of credit and decrease the cost of credit. Easy availability of credit raises the demand for credit. Accordingly, AD is raised and deficiency of demand (or deflationary gap) is curbed.

Monetary Policy and Fiscal Policy—The Difference

Monetary Policy	Fiscal Policy
(i) It is the policy of correcting excess or deficient demand in the economy by controlling the supply of credit.	(i) It is the policy of correcting excess or deficient demand in the economy by managing revenue and expenditure of the government.
(ii) It is pursued by the central bank of a country (RBI in India).	(ii) It is pursued by the government of a country.
(iii) Tools of monetary policy are: bank rate, repo rate, reverse repo rate, open market operations, cash reserve ratio, statutory liquidity ratio, margin requirement, moral suasion and credit rationing.	(iii) Tools of fiscal policy are: government expenditure, taxes, public borrowing and borrowing from central bank.

Power Points & Revision Window

Full Employment Equilibrium and Underemployment Equilibrium

- **Full Employment Equilibrium** refers to that situation in the economy when $AS = AD$ (or $S = I$) along with fuller utilisation of labour. [$AS = AD$, corresponding to the situation of full employment.]
- **Underemployment Equilibrium** refers to that situation in the economy when $AS = AD$ (or $S = I$) but without fuller utilisation of labour. [$AS = AD$, corresponding to the situation of less than full employment.]

Voluntary and Involuntary Unemployment

- **Voluntary Unemployment** occurs when some people are not willing to work at all, or are not willing to work at the existing wage rate.
- **Involuntary Unemployment** refers to a situation when people are not getting work, even when they are willing to work at the existing wage rate.

Full Employment and Natural Unemployment

- **Full Employment** is that situation in the economy when $AS = AD$ along with fuller utilisation of resources. But it does not mean a situation of zero unemployment in the economy.
- **Natural Unemployment** is that rate of unemployment (minimum rate of unemployment) which always exists in the economy, owing to constantly changing supply and demand parameters in the economy.

Deficient Demand is a situation when: $AD < AS$ (corresponding to full employment level).

- **Deflationary Gap** is measured as the difference between 'AD-at full employment' and 'AD-at underemployment'.
- **Causes of Deflationary Gap:** (i) Reduction in private consumption expenditure, (ii) Reduction in investment expenditure, (iii) Reduction in government expenditure, (iv) Decline in exports, (v) Rise in imports, (vi) Increase in tax burden.
- **Consequences of Deficient Demand:** Deficient Demand causes Deflation and Underemployment: When AD fails to catch up with AS of full employment, all goods and services produced in the economy cannot be sold. Accordingly, profits start shrinking. This discourages investment and lowers the level of income/employment in the economy. The economy is caught in a low level equilibrium trap where low AD causes low output and low output/income causes low AD.

Excess Demand is a situation when: $AD > AS$ (corresponding to full employment level).

- **Inflationary Gap** is measured as the difference between 'AD-beyond full employment' and 'AD-at full employment'.
- **Causes of Inflationary Gap:** Causes of inflationary gap are just opposite to the (above stated) causes of deflationary gap. These are related to a rise in the various components of AD, a rise that continues to occur even when resources are fully utilised.
- **Consequences of Excess Demand:** Excess Demand causes Inflation: Because excess demand is that level of AD which surpasses AS (at full employment level), it must cause inflation. Output cannot be increased once full employment is reached. Hence, AD beyond its full employment level would only generate pressure of demand on the existing supply. Implying inflation. The economy is caught in a wage-price spiral: wages catch prices and prices catch wages.

Correcting Excess and Deficient Demand

Measures of correcting excess and deficient demand, include: (i) fiscal measures, and (ii) monetary measures. Fiscal measures relate to fiscal policy of the government, and monetary measures relate to monetary policy of the central bank.

- **Fiscal Policy** refers to the revenue and expenditure policy (or budgetary policy) of the government to correct the situations of excess and deficient demand in the economy with a view to achieve 'growth with stability'.

- **Components of Fiscal Policy** and the way these are used:

- (i) Government Expenditure:** Increased to correct deficient demand, and decreased to correct excess demand.
- (ii) Taxes:** Tax burden is lowered to correct deficient demand, and raised to correct excess demand.
- (iii) Public Borrowing:** Decreased to correct deficient demand, and increased to correct excess demand.
- (iv) Borrowing from RBI:** Increased to correct deficient demand, and decreased to correct excess demand.

Monetary Policy refers to that policy which corrects excess and deficient demand by regulating the cost of credit and availability of credit in the economy.

- **Components of Monetary Policy** and the way these are used:

- (i) Bank Rate/Repo Rate:** Increased to correct excess demand, and decreased to correct deficient demand.
- (ii) Reverse Repo Rate:** Increased to correct excess demand and decreased to correct deficient demand.
- (iii) Open Market Operations:** The central bank sells securities to correct excess demand and buys securities to correct deficient demand.
- (iv) CRR:** Raised to correct excess demand, and lowered to correct deficient demand.
- (v) SLR:** Raised to correct excess demand, and lowered to correct deficient demand.
- (vi) Margin Requirement:** Raised to correct excess demand, and lowered to correct deficient demand.
- (vii) Credit Rationing:** Introduced to correct excess demand, and withdrawn (if already in force) to correct deficient demand.
- (viii) Moral Suasion:** Banks are advised to pursue cheap money policy to correct deficient demand, and dear money policy to correct excess demand.

EXERCISE

1. Objective Type Questions (Remembering & Understanding based Questions)

A. Multiple Choice Questions

Choose the correct option:

1. Full employment equilibrium refers to a situation of:
 - (a) $AD = AS$ (with fuller utilisation of resources)
 - (b) zero unemployment
 - (c) both (a) and (b)
 - (d) none of these

2. Natural unemployment occurs due to:
 - (a) shortage of factors of production
 - (b) time required in adjusting to change in technology
 - (c) time required in shifting from one job to the other
 - (d) both (b) and (c)
3. Frictional unemployment occurs due to:
 - (a) immobility of labour
 - (b) lack of production capacity
 - (c) low wage rate
 - (d) none of these
4. Structural unemployment occurs due to:
 - (a) change in technology
 - (b) when factors (other than labour) are in shortage
 - (c) both (a) and (b)
 - (d) none of these
5. Deficient demand leads to:
 - (a) deflationary gap
 - (b) inflationary gap
 - (c) both (a) and (b)
 - (d) none of these
6. Deflationary gap is measured as:
 - (a) $AD_F + AD_p$
 - (b) $AD_F \div AD_p$
 - (c) $AD_F - AD_p$
 - (d) none of these

[Note: Here, AD_F = Full employment AD; AD_p = Planned AD corresponding to underemployment.]
7. Excess demand refers to a situation when:
 - (a) $AD > AS$ (corresponding to full employment)
 - (b) $AD < AS$ (corresponding to full employment)
 - (c) unsold stocks tend to increase
 - (d) none of these
8. Excess demand leads to:
 - (a) inflationary gap
 - (b) rise in prices
 - (c) rise in employment level
 - (d) both (a) and (b)
9. Which of the following does not lead to fall in AD?
 - (a) Fall in private consumption expenditure
 - (b) Fall in exports
 - (c) Fall in imports
 - (d) Fall in government expenditure
10. Which of the following leads to increase in AD?
 - (a) Fall in imports
 - (b) Increase in investment expenditure
 - (c) Increase in government expenditure
 - (d) All of these
11. Inflationary gap:
 - (a) raises the level of output
 - (b) does not impact the level of output
 - (c) raises the general price level
 - (d) both (b) and (c)
12. If the level of AD is to be raised (implying an upward shift in AD curve) there should be:
 - (a) increase in autonomous investment
 - (b) increase in autonomous consumption expenditure
 - (c) both (a) and (b)
 - (d) none of these
13. Revenue and expenditure policy of the government to correct the situations of excess and deficient demand is known as:
 - (a) monetary policy
 - (b) fiscal policy
 - (c) both (a) and (b)
 - (d) none of these

14. Which of the following components of fiscal policy can be used to correct deficient demand?
 (a) Increase in government expenditure (b) Cut in tax rates
 (c) Cut in public borrowing (d) All of these
15. Deficient or excess demand can be corrected through:
 (a) fiscal policy (b) monetary policy
 (c) both (a) and (b) (d) none of these
16. With a view to correcting inflationary gap, which of the following fiscal policy measures should be adopted?
 (a) Increase in taxes (b) Reduction in public expenditure
 (c) Increase in public debt (d) All of these
17. Which of the following components of monetary policy can be adopted to correct excess demand?
 (a) Increase in bank rate (b) Increase in CRR
 (c) Increase in margin requirement (d) All of these
18. To correct the situation of deflationary gap, the central bank:
 (a) increases margin requirement (b) decreases margin requirement
 (c) increases cash reserve ratio (d) both (b) and (c)
19. By increasing the tax burden on the households, the government intends to:
 (a) correct the situation of deficient demand
 (b) correct the situation of inflationary gap
 (c) correct the situation of excess demand
 (d) both (b) and (c)
20. Wage-price spiral is a consequence of:
 (a) inflationary gap (b) deflationary gap
 (c) stagflation (d) both (a) and (c)

Answers

1. (a) 2. (d) 3. (a) 4. (c) 5. (a) 6. (c) 7. (a) 8. (d) 9. (c) 10. (d)
 11. (d) 12. (c) 13. (b) 14. (d) 15. (c) 16. (d) 17. (d) 18. (b) 19. (d) 20. (a)

B. Fill in the Blanks

Choose appropriate word and fill in the blank:

1. In a state of underemployment equilibrium, there is _____ capacity in the economy.
 (utilised/unutilised)
2. _____ unemployment refers to a situation when people choose to remain unemployed.
 (Voluntary/Involuntary)
3. _____ unemployment is associated with the changing of jobs in dynamic economy.
 (Frictional/Structural)
4. _____ in tax rates leaves lesser disposable income with the people. (Increase/Decrease)
5. _____ demand generates pressure of demand on the existing resources.
 (Deficient/Excess)
6. Imports are a _____ component of AD.
 (positive/negative)
7. _____ gap is measured as the difference between 'planned AD which is beyond full employment level' and 'AD that corresponds to full employment'.
 (Inflationary/Deflationary)

8. There is unemployment or underemployment in the economy in a situation of _____ (inflationary gap/deflationary gap)
9. _____ policy refers to revenue and expenditure policy of the government. (Fiscal/Monetary)
10. Reverse repo rate is _____ by the RBI in order to reduce the availability of credit in the economy. (raised/reduced)

Answers

- | | | | | |
|---------------|-----------------|---------------------|-------------|------------|
| 1. unutilised | 2. Voluntary | 3. Frictional | 4. Increase | 5. Excess |
| 6. negative | 7. Inflationary | 8. deflationary gap | 9. Fiscal | 10. raised |

C. True or False

State whether the following statements are True or False:

1. Full employment equilibrium refers to that situation in the economy when AS = AD along with fuller utilisation of resources. (True/False)
2. Natural unemployment is a situation of ‘frictional and structural’ unemployment in the economy. (True/False)
3. A rise in government consumption expenditure leads to a cut in AD. (True/False)
4. AD is deficient when there is excess capacity in the economy. (True/False)
5. In a situation of excess demand, the price level does not rise. (True/False)
6. Deflationary gap is measured in terms of excess demand. (True/False)
7. Taxes are a compulsory payment made to government by the household. (True/False)
8. Higher borrowing by the government from the RBI releases greater liquidity in the economy. (True/False)
9. Monetary policy is also called budgetary policy of the government. (True/False)
10. CRR is raised to increase credit creation capacity of the commercial banks. (True/False)

Answers

1. True 2. True 3. False 4. True 5. False 6. False 7. True 8. True 9. False 10. False

D. Matching the Correct Statements

I. From the set of statements given in Column I and Column II, choose the correct pair of statements:

Column I	Column II
(a) Underemployment equilibrium	(i) No unemployment in the economy
(b) Involuntary unemployment	(ii) Excess capacity in the economy
(c) Problem of unemployment	(iii) Problem of involuntary unemployment
(d) Full employment	(iv) A situation of zero unemployment
(e) Natural rate of unemployment	(v) Maximum rate of unemployment that must always exist in the economy

Answer

- (c) Problem of unemployment—(iii) Problem of involuntary unemployment

II. Identify the correct sequence of alternatives given in Column II by matching them with respective items in Column I:

Column I	Column II
(a) Full employment equilibrium	(i) Inflationary gap in the economy
(b) Structural unemployment	(ii) Underemployment equilibrium
(c) Excess of demand	(iii) Pursued by the central bank of a country
(d) Shortage of demand	(iv) Change in the technique of production
(e) Monetary policy	(v) No excess capacity

Answers

(a)—(v), (b)—(iv), (c)—(i), (d)—(ii), (e)—(iii)

E. 'Very Short Answer' Objective Type Questions

1. What is full employment equilibrium?
Ans. Full employment equilibrium is struck when $AS = AD$ along with fuller utilisation of the resources.
2. Give the meaning of underemployment equilibrium.
Ans. Underemployment equilibrium is struck when $AS = AD$ but resources are still not fully utilised and there is excess capacity in the economy.
3. What is voluntary unemployment?
Ans. Voluntary unemployment is a situation in which a worker is not willing to work at the current rate of wage.
4. Give the meaning of involuntary unemployment.
Ans. Involuntary unemployment is a situation in which a worker is willing to work at current rate of wage but does not get work.
5. What is meant by full employment?
Ans. Full employment refers to a situation in which all those who are able to work and are willing to work at the existing wage rate get work.
6. What is the natural rate of unemployment?
Ans. Natural rate of unemployment is the minimum rate of unemployment that must exist in the economy even when the labour market is in a state of equilibrium.
7. Define frictional unemployment.
Ans. Frictional unemployment is that unemployment which is associated with changing the jobs in a dynamic economy.
8. Define structural unemployment.
Ans. Structural unemployment is that unemployment which is associated with structural changes in the economy, like change in technology.
9. Does full employment mean zero unemployment?
Ans. Full employment does not mean a situation of zero unemployment. Natural rate of unemployment (minimum rate of unemployment) always exists in the economy.
10. What is meant by deficient demand?
Ans. Deficient demand refers to a situation when aggregate demand is short of aggregate supply corresponding to full employment in an economy.

11. What is meant by excess demand?

Ans. Excess demand refers to a situation when aggregate demand is in excess of aggregate supply corresponding to full employment in an economy.

12. Define deflationary gap.

Ans. Deflationary gap is the shortfall in AD from the level required to maintain full employment in the economy.

13. Define inflationary gap.

Ans. Inflationary gap is the excess of AD over and above its level required to maintain full employment equilibrium in the economy.

14. How deficient demand impacts economic activity in the economy?

Ans. In a situation of deficient demand, output level tends to reduce. Level of employment also reduces. This leads to a fall in the level of income and consequently a fall in AD. The economy is caught in the low level equilibrium trap.

15. What happens when AD increases beyond its full employment level?

Ans. When AD increases beyond its full employment level, output remains constant. But, the pressure of demand on the existing supply starts mounting up. This leads to a rise in prices. This implies a situation of inflation.

16. How does price level indicate the existence of excess demand?

Ans. When there is excess demand in the economy, the price level tends to rise.

17. What does excess capacity mean in the context of equilibrium GDP?

Ans. Existence of excess capacity points to the deficiency of AD. It leads to underemployment equilibrium.

18. What is fiscal policy?

Ans. Fiscal policy refers to revenue and expenditure policy of the government to correct the situations of excess and deficient demand in the economy.

19. What is monetary policy?

Ans. Monetary policy is the policy relating to the control of (i) supply of money, and (ii) availability of credit, and (iii) cost of credit (rate of interest) with a view to combating the situations of excess and deficient demand in the economy.

20. What happens to the demand for credit in the economy when repo rate is increased?

Ans. When repo rate is increased, the commercial banks, as a follow-up action, raise the market rate of interest (the rate at which the commercial banks lend money to the consumers and the investors). This reduces demand for credit.

21. How should reverse repo rate be changed to check inflation?

Ans. Reverse repo rate should be raised, so that the commercial banks are induced to park more funds with the RBI to generate interest income. Accordingly, less funds would be used as CRR-reserves for credit creation. This will check inflation.

2. Reason-based Questions (Comprehension of the Subject-matter)

Read the following statements carefully. Write True or False with a reason.

1. Once equilibrium GDP is achieved, the level of output is the same; no matter it is underemployment equilibrium or full employment equilibrium.

Ans. False. GDP level is lower corresponding to underemployment equilibrium compared with full employment equilibrium.

2. **Full employment implies zero unemployment when nobody is ever unemployed in the economy.**
 Ans. False. Even in a state of full employment, there is always some minimum level of the unemployment, called natural unemployment.
3. **Underemployment equilibrium indicates excess capacity in the economy.**
 Ans. True. In the situation of underemployment equilibrium, AD is less than what is needed for full employment of the factors. Implying the existence of excess capacity in the economy.
4. **Excess demand leads to greater opportunities of employment in the economy.**
 Ans. False. Excess demand is a situation when $AD > AS$ corresponding to full employment in the economy. Accordingly, there is no possibility of greater employment opportunities when there is excess demand.
5. **Low level equilibrium trap is the consequence of excess demand.**
 Ans. False. Low level equilibrium trap is the consequence of deficient demand.
6. **Wage-price spiral is the consequence of deficient demand.**
 Ans. False. Wage-price spiral is the consequence of excess demand. In this situation, wages catch prices and prices catch wages. Output cannot increase because resources are already fully employed.
7. **Increase in output beyond underemployment equilibrium does not cause inflationary gap.**
 Ans. True. Increase in output beyond underemployment equilibrium does not cause inflationary gap because excess capacity exists in the economy. Increase in AD induces proportionate increase in AS at the existing price level.
8. **Increase in AD beyond full employment does not cause increase in market price of the output.**
 Ans. False. Increase in AD beyond full employment leads to increase in market price of the output. However, the level of output does not increase.
9. **To correct the inflationary gap, availability of credit should be increased.**
 Ans. False. To correct inflationary gap, availability of credit should be reduced. Reduction in the availability of credit would cause a reduction in AD to correct the inflationary gap.
10. **To correct the deflationary gap, the government should increase taxation.**
 Ans. False. In order to correct the deflationary gap, the government should reduce taxation. Lower taxation would increase disposable income. Accordingly, AD would increase to correct the deflationary gap.
11. **An increase in AD must cause a rise in general price level.**
 Ans. False. An increase in AD may not cause increase in general price level in a situation of excess capacity in the economy.
12. **In a situation of inflationary gap, general price level tends to rise.**
 Ans. True. In the situation of inflationary gap, excess demand implies pressure of demand on the existing resources. Consequently, cost of production rises causing a rise in the general price level.
13. **In a situation of deflationary gap, low level of AD leads to low level of AS.**
 Ans. True. Under deflationary gap or deficient demand, underemployment equilibrium occurs at a point where level of AD is less than that of full employment. Since AS is assumed to be perfectly elastic, it aligns itself to the low level of AD.
14. **Inflationary gap can be corrected by lowering the level of autonomous investment.**
 Ans. True. Inflationary gap or excess demand can be corrected by reducing autonomous investment expenditure because investment is a component of AD.
15. **Deflationary gap can be corrected by increasing the level of AD.**
 Ans. True. Deflationary gap can be corrected by increasing the level of AD. Because it is the deficiency of AD that causes deflationary gap.

16. Bank rate should be lowered in a situation of inflationary gap.

Ans. False. Bank rate should be increased in a situation of inflationary gap in order to lower money supply in the economy. Implying that AD should reduce.

17. CRR should be raised to combat deflationary gap.

Ans. False. CRR should be lowered to combat deflationary gap. This raises capacity of the commercial banks to create credit in the economy. Thus, AD tends to rise.

18. SLR needs to be raised to combat deflationary gap.

Ans. False. SLR should be lowered to combat deflationary gap. This raises capacity of the commercial banks to create credit in the economy. Thus, AD tends to rise.

19. It is not possible to combat inflationary gap without causing unemployment in the economy.

Ans. False. When inflationary gap is combated, the economy is brought back to its full employment level. Hence, no question of decrease in employment.

20. When deflationary gap is combated, the level of employment tends to rise in the economy.

Ans. True. Deflationary gap causes a fall in the level of employment. So that when deflationary gap is combated, there is rise in the employment level in the economy.

3. HOTS & Applications

1. Equilibrium beyond full employment is a better situation (in terms of the level of GDP) than equilibrium at full employment. Defend or refute.

Ans. The given statement is incorrect. Output remains constant even beyond full employment equilibrium. Because, full employment equilibrium output is the maximum output.

2. What is the effect of deficient demand on output, employment and prices?

Ans. (i) **Effect on Output:** Deficient demand leads to low level of output.

(ii) **Effect on Employment:** Because deficient demand lowers the level of planned output, the level of employment is also lowered. A situation of unemployment or underemployment prevails in the economy.

(iii) **Effect on Prices:** Fall in prices is the immediate consequence of deficient demand. Because, owing to low sales, stocks tend to pile up, compelling the producers to lower the prices.

3. What is the effect of excess demand on output, employment and prices?

Ans. (i) **Effect on Output:** In the situation of excess demand, output does not increase. The economy is already operating at full employment. So that the possibility of increase in output is ruled out.

(ii) **Effect on Employment:** Employment will not increase because there is no involuntary unemployment in the economy. The economy has already achieved full employment.

(iii) **Effect on Prices:** Excess demand only generates pressure of demand on the existing flow of goods and services in the economy. Accordingly, prices tend to rise.

4. Is a situation of underemployment better than that of over-employment because in a state of underemployment price level does not rise?

Ans. No. Underemployment leads to lower level of income (lower than the full employment). It causes a fall in AD and the economy might be driven into a situation of low level equilibrium trap.

5. Even in a state of full employment, there is a possibility of an increase in output. Is it true?

Ans. No. In a state of full employment, output will not increase if it is assumed that technology remains constant.

6. Fiscal policy always aims at raising additional revenue for the government. Comment.

Ans. The given statement is incorrect. Fiscal policy aims at maintaining a fiscal balance in the country which may require additional revenue or additional expenditure by the government.

7. Do you agree that fiscal policy and monetary policy are opposite to each other?

Ans. No, it is not correct. Fiscal and monetary policies are complementary to each other. Both are simultaneously pursued to combat the situation of inflationary or deflationary gap.

8. Is it correct to say that the government intervention through fiscal and monetary policies is not required in the market economies which are governed by the market forces of demand and supply?

Ans. No, it is not. **Keynes** supported the existence of market economies. But even he suggested that the government intervention in these economies is essential, when there are inflationary/deflationary gaps. It is only through government intervention (through autonomous investment by the government) that the low level equilibrium trap can be broken in the market economies.

9. *Price of crude oil has drastically fallen in the international oil market.*

Can you identify its negative impact on aggregate demand for the goods produced in India?

Ans. A drastic fall in the price of crude oil in the international market would lead to an equally drastic fall in the level of income in the oil-producing economies. To the extent India depends on these economies for its exports, it would mean a fall in 'export' component of aggregate demand. So that, aggregate demand (for the goods produced in India) is expected to fall.

10. *Exemption limit for the payment of income tax has been raised from ₹ 2 lakh to ₹ 2.5 lakh, for the financial year 2017-18.*

Do you think it would help correct the deficiency of demand even when MPC remains constant?

Ans. A rise in exemption limit from ₹ 2 lakh to ₹ 2.5 lakh would lead to a rise in disposable income of a taxpayer by ₹ 50,000. Let us assume that MPC = 0.5, and it remains constant. It would mean that aggregate consumption in the economy would increase by $0.5 \times ₹ 50,000 = ₹ 25,000$ per taxpayer. Accordingly, deficiency of demand would be corrected.

Thus, we conclude that an increase in exemption limit relating to income tax would help correct deficiency of demand even when MPC remains constant.

11. Briefly state how monetary policy is used to correct deficient demand.

Ans. Following observations highlight how monetary policy is used to correct deficient demand:

- (i) Bank rate/Repo rate is lowered, following which market rate of interest is reduced. This implies a cut in the cost of credit. Accordingly, demand for credit increases. Implying a rise in AD, as required to correct deficient demand.
- (ii) Reverse repo rate is lowered to induce banks to use their funds more for the creation of credit.
- (iii) Securities are purchased by the RBI in the open market to inject liquidity into the system. This raises AD.
- (iv) CRR and SLR are lowered. This raises capacity of the commercial banks to create credit. Availability of credit increases. Accordingly, AD tends to rise.
- (v) Margin requirement is reduced. This makes credit more attractive. Accordingly, borrowing increases causing a rise in AD.
- (vi) Moral pressure is exerted by the central bank on the commercial banks to be liberal in lending, so that demand for credit increases and AD is raised.
- (vii) Credit rationing, if already in force, is withdrawn. Availability of credit become easy. Accordingly, borrowing increases and AD rises.

Briefly, deficient demand is corrected by pursuing cheap money policy. Cost of credit (or rate of interest) is decreased and availability of credit is increased. Accordingly, demand for credit rises and AD tends to rise.

4. Analysis & Evaluation

1. Underemployment is a critical feature of the Indian economy. Can we really explain it in terms of the deficiency of demand?

Ans. Prof. Keynes blames deficiency of demand for underemployment. But, it is with reference to such economies which are the victim of recession/depression and where deficiency of demand leads to excess capacity. In countries like India, underemployment is not related to excess capacity. Instead, it is related to the lack of production capacity. What India lacks is not demand to generate employment, but production capacity (capital) to engage the surplus labour force. Which is why the government is encouraging FDI (foreign direct investment).

2. Do you think tackling slowdown in industrial production (due to low investment) should be the priority of the Government in India rather than the high rate of inflation?

Ans. Indian economy has been driven into complex situation of slowdown in industrial production along with a high rate of inflation. If industrial production is to be stepped up, cost of credit (rate of interest) must be lowered by the commercial banks. This requires that the government lowers the repo rate (so that the market rate of interest is lowered for the investors). But, if interest rate is lowered and demand for credit rises, two adverse impacts cannot be avoided: (i) level of AD would rise which will further fuel the rate of inflation, and (ii) rising rate of inflation would increase the gulf between the 'haves' and 'have-nots'. High rate of growth (achieved through lower rate of interest) would no longer be an 'inclusive growth'. Instead, it will be growth, that excludes larger sections of the society.

It is, thus, recommended that the government should proceed very cautiously. While the industrial sector needs a big-push, the government must ensure that problem of inflation is simultaneously addressed.

3. How, in your opinion, the European economies can break the deadlock of economic recession? Write two suggestions.

Ans. (i) The government in European economies should scale up autonomous investment. Increase in autonomous investment will raise the level of AD and break the deadlock of low inducement to invest.

(ii) The government should encourage the domestic producers to explore markets in rest of the world. The government can do it by offering export subsidy, or by offering tax-breaks to the exporters.

4. Even when the general price level is rising (in the wake of inflation) industrial production is shrinking. How do you explain such a situation of stagflation in India?

Ans. During inflation, real income of the people tends to shrink. This causes a fall in AD, prompting a cut in production. Planned output becomes lower than the potential output and a situation of excess capacity (unutilised capacity) emerges in the economy. This is aggravated by the high cost of inputs in the wake of inflation. Thus, industrial production starts shrinking even when the general price level is rising. The economy slides towards stagflation—a situation of stagnation in the midst of inflation.

5. How will the flow of funds in the money market be impacted, if CRR is gradually lowered by the central bank?

Ans. CRR makes it mandatory for the commercial banks to keep some cash reserves (as a percentage of their deposits) with the central bank. These are sterilised cash reserves or idle cash reserves from the viewpoint of the commercial banks. If CRR is gradually lowered, these cash reserves can be productively utilised by the commercial banks. Cash reserves can add to the stock of liquid assets of the banks, and accordingly, enhance their capacity to create credit (on the basis of the existing SLR). Accordingly, flow of funds in the money market will increase.

6. How will implementation of the 7th pay commission impact AD in the economy?

Ans. Implementation of the 7th pay commission is expected to increase disposable income of the people. It would mean increase in aggregate demand for goods and services. It is hoped that increase in AD would break the deadlock of slow industrial growth in the economy. With the rise in industrial production, GDP growth rate is also expected to rise.

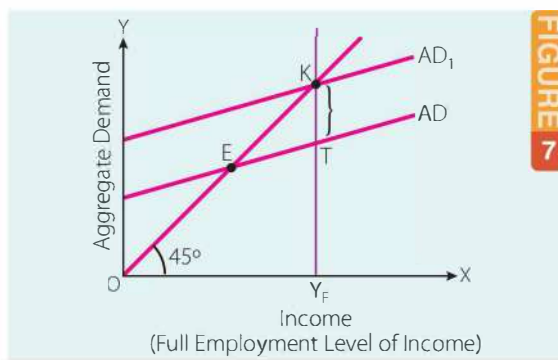
5. CBSE Questions—Past 5 years (With Answers or Reference to the Text for Answers)

1. Explain the concept of inflationary gap. Explain the role of repo rate in reducing this gap.
[Page 265, 270] [CBSE Delhi 2015]
2. Explain the concept of deflationary gap and the role of 'open market operations' in reducing this gap.
[Page 261, 262, 272] [CBSE Delhi 2015]
3. What is 'deficient demand'? Explain the role of 'bank rate' in removing it.
[Page 258, 272] [CBSE (AI) 2015]
4. What is 'excess demand'? Explain the role of 'reverse repo rate' in removing it.
[Page 263, 271] [CBSE (AI) 2015]
5. What is 'inflationary gap'? Explain the role of cash reserve ratio in removing this gap. [CBSE (F) 2015]
[Page 265, 271]
6. What is 'deficient demand'? Explain the role of 'margin requirements' in removing this gap.
[Page 258, 272] [CBSE (F) 2015]
7. Explain the role of taxation in reducing excess demand.
[Page 269] [CBSE Delhi 2016]
8. Explain how controlling money supply is helpful in reducing excess demand. [CBSE (AI) 2016]
[Money supply refers to the total quantity or stock of money available in the economy at a point of time. Controlling money supply amounts to controlling the demand for goods and services in the economy. Demand includes both consumption expenditure (C) as well as investment expenditure (I). Both C and I are important components of aggregate demand. Accordingly, when C and I are reduced, excess demand is automatically reduced.]
9. Explain how can government spending be helpful in removing deficient demand. [CBSE (F) 2016]
[Page 269]
10. Aggregate demand can be increased by: (choose the correct alternative)
(a) increasing bank rate (b) selling government securities by Reserve Bank of India
(c) increasing cash reserve ratio (d) none of the above [CBSE Delhi 2017]
[(d)]
11. Give the meaning of involuntary unemployment. [CBSE Delhi 2017]
Or
Define the term "involuntary unemployment". [CBSE 2019 (58/3/1)]
[Page 256]
12. Give the meaning of underemployment equilibrium. [CBSE (F) 2017]
[Page 256]
13. Define full employment in an economy. Discuss the situation when aggregate demand is more than aggregate supply at full employment income level. [CBSE 2018]
[Page 257, 263, 264]

14. In the given figure, what does the gap 'KT' represent? State any two fiscal measures to correct the situation.

[CBSE 2019 (58/1/1)]

[Page 258, 259, 269, 270]



15. State the meaning of full employment.

[Page 257]

[CBSE 2019 (58/2/1)]

16. State the impact of "Excess Demand" under the Keynesian theory on employment, in an economy.

[Page 263–267]

[CBSE 2019 (58/2/1)]

17. Show inflationary gap using a well labelled diagram. Suggest any two fiscal measures to correct the situation of inflationary gap.

[Page 265, 269, 270]

[CBSE 2019 (58/3/1)]

18. State the following statement as true or false. Give valid reason.

According to Keynesian theory of employment, the state of full employment is obtained only when the economy is in equilibrium.

[CBSE 2019 (58/3/1)]

[False. Keynes discusses equilibrium independent of the condition of full employment. There may or may not be a situation of full employment at the point of equilibrium. Because, equilibrium simply refers to a situation when the desired AD = desired AS, no matter what the level of employment is. Thus, equilibrium may occur even when there is underemployment in the economy. What matters is that the planned level of output must match with the planned level of expenditure on the output.]

19. State the following statement as true or false. Give valid reason.

According to Keynesian theory of employment, a state of underemployment can never exist in an economy.

[CBSE 2019 (58/3/3)]

[False. According to Keynesian theory of employment, a state of underemployment can exist in the economy. This state may occur at that level of income where equilibrium between AD and AS happens at less than full employment level.]

20. State the meaning of the following:

- (i) Full employment.
- (ii) Involuntary unemployment.

[CBSE 2019 (58/5/1)]

[Page 256, 257]

6. NCERT Questions (With Hints to Answers)

1. What is deficient demand?

[Hint: Deficient demand refers to a situation when $AD < AS$ corresponding to full employment in the economy. It causes deflationary gap.]

2. What is excess demand?

[Hint: Excess demand refers to a situation when $AD > AS$ corresponding to full employment in the economy. It causes inflationary gap.]

3. How can the problems of excess and deficient demand be combated?

[Hint: Monetary and fiscal instruments are the key to combat the problems of excess and deficient demand. Fiscal instruments relate to revenue and expenditure policy of the government. Monetary instruments relate to the regulation of money supply in the economy. To combat excess demand, the government needs to curb its expenditures and raise its revenue. On the monetary front, it needs to pursue a Dear Money Policy, making availability of credit tougher than before and shrinking the credit creation capacity of the commercial banks. To combat deficient demand, on the other hand, expenditure needs to be stimulated while revenue needs to be curbed. On the monetary front, Cheap Money Policy needs to be pursued, facilitating easy availability of credit and enhancing credit creation capacity of the commercial banks.]

7. Miscellaneous Questions and Reference to the Text for Answers

A. Questions of 3 & 4 marks each

1. Explain voluntary and involuntary unemployment. [Page 256, 257]
2. What is deficient demand? Illustrate with the help of a diagram. [Page 258, 259]
3. What is excess demand? Illustrate with the help of a diagram. [Page 263, 264]
4. What is deficient demand in an economy? What is its impact on output, employment and prices? [Page 258, 281, Q. 2]
5. What is excess demand in macroeconomics? How does excess demand affect the level of output, employment and prices? [Page 263, 281, Q. 3]
6. Explain the meaning of deflationary gap with the help of a diagram. [Page 262, 263]
7. Explain the meaning of inflationary gap with the help of a diagram. [Page 265]
8. Differentiate between inflationary gap and deflationary gap. [Page 267]
9. What is fiscal policy? What are its various instruments? [Page 268–270]
10. What is monetary policy? State its four instruments. [Page 270–272]
11. What is meant by deficient demand in macroeconomics? State two measures to correct it. [Page 258, 268–272]
12. Give the meaning of excess demand in macroeconomics. Give any two monetary policy measures to correct it. [Page 263, 270, 271]
13. How does repo rate affect the availability of credit? [Page 270, 272]
14. How do open market operations affect the availability of credit? [Page 271, 272]
15. How do changes in cash reserve ratio affect the availability of credit? [Page 271, 272]
16. How does lowering or raising of margin requirement affect the availability of credit? [Page 271, 272]
17. What happens in an economy when credit availability is restricted and credit is made costlier? [Page 270, 271]

B. Questions of 6 marks each

1. What do you understand by the concept of full employment? Does it refer to a situation of zero unemployment? [Page 257]
2. What is meant by deficient demand? Explain its causes and consequences. [Page 258–263]
3. What is meant by excess demand? Explain its causes and consequences. [Page 263–267]
4. Analyse the distinction between deficient demand and excess demand in an economy. [Page 258, 263]
5. Explain the concept of deflationary gap with the help of a diagram. What is its impact on output and prices? [Page 261–263]
6. Explain the concept of inflationary gap with the help of a diagram. What is its impact on output and prices? [Page 265]

7. Distinguish between inflationary gap and deflationary gap. Show deflationary gap on a diagram. Can this gap exist at equilibrium level of income? Explain. [Page 261, 262, 265, 267]
8. How can the problems of excess and deficient demand be corrected? [Page 268–272]
9. What is fiscal policy? How is it used to correct excess and deficient demand? [Page 268–270]
10. What is monetary policy? How is it used during the situations of excess demand and deficient demand? [Page 270–272]
11. What is the difference between fiscal policy and monetary policy? Explain in brief two methods of fiscal policy to control excess demand. [Page 269, 270, 272]
12. Explain the problem of excess demand in an economy with the help of a diagram. Explain the role of repo rate in correcting it. [Page 263, 264, 270]
13. What is deficient demand in macroeconomics? Show it on a diagram. Explain the role of open market operations in correcting it. [Page 258, 259, 272]
14. How are changes in fiscal policy helpful in controlling excess demand and deficient demand? [Page 268–270]
15. Does equilibrium beyond ‘full employment’ imply a higher level of output compared to ‘full employment equilibrium’?
 [Hint: No, any equilibrium beyond full employment does not imply a higher level of output. After full employment level is reached, there is no question of any increase in output, simply because more resources are not available (and because technology is assumed to remain constant). Accordingly, any equilibrium beyond full employment only implies a situation of equality between AS and AD with higher market value of the existing level of output (full employment level of output). Market value of the existing output will increase simply because excess demand leads to a rise in the general price level.]

DOs and DON'Ts

1. Deficient demand or deflationary gap causes a fall in the level of employment. But, do not jump to a reverse conclusion that excess demand or inflationary gap increases the level of employment. You must understand that inflationary gap occurs only after a situation of full employment is reached; hence there is no question of increase in employment in a situation of excess demand or inflationary gap.
2. Remember, there is always a conflict between (i) high GDP growth, and (ii) the rate of inflation. If the rate of inflation is to be curbed, CRR, SLR and repo rate are to be kept high. But, higher the level of these parameters, lower is the availability of credit in the market. Lower availability of credit leads to lower investment and therefore, lower GDP growth.



• How Government Expenditure Impacts Equilibrium Income or GDP – A Diagrammatic Presentation

When the government comes into picture, we are dealing with a three sector economy. It includes:

- (i) household sector,
- (ii) the producing sector, and
- (iii) the government sector.

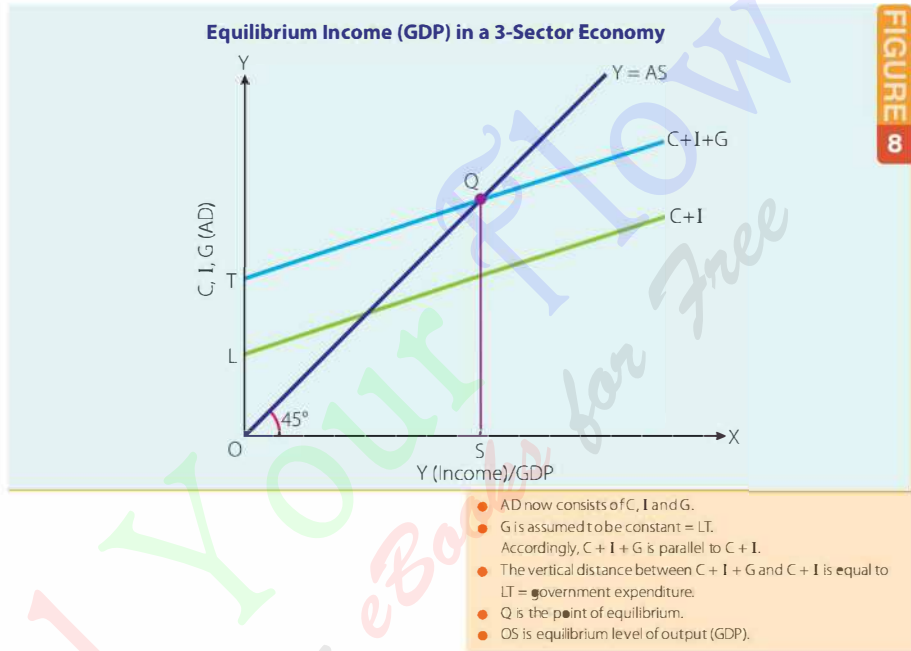
Accordingly, total expenditure in the economy (or components of AD) would include:

- (i) consumption expenditure (C),

- (ii) private investment expenditure (I), and
- (iii) government expenditure (G).

- **Equilibrium Income/GDP in a 3-Sector Economy**

For the sake of simplicity, we assume government expenditure to be constant (autonomous) like private investment expenditure. So that (like I-function), the government expenditure is indicated by a horizontal straight line. Fig. 8 illustrates the equilibrium income (GDP) in a three sector economy.



Government expenditure is assumed to be constant and equal to LT. Accordingly, C + I function (AD without government expenditure) shifts upward to become C + I + G function (AD with government expenditure). The two functions (AD with government expenditure and AD without government expenditure) are shown as parallel to each other, because G (government expenditure) is assumed to be constant. Equilibrium is struck at point Q where C + I + G function intersects the 45° line. Here, desired AD = desired AS. Equilibrium income (GDP) = OS.

- **How does the Government Correct the Situations of Deficient Demand and Excess Demand?**

We consider these situations one by one.

Deficient AD in a 3-Sector Economy and its Correction by the Government

We know, deficient demand is a situation of deflationary gap. The economy is driven into a state of low level equilibrium trap. Low AD causes underemployment: factors of production are not fully employed. Planned output remains low. It leads to low level of income. Because incomes are low, once again there is low

AD. The cycle of low AD and low income becomes repetitive. The market forces fail to break this repetitive cycle. The government must step in. It must raise the level of AD by increasing government expenditure.

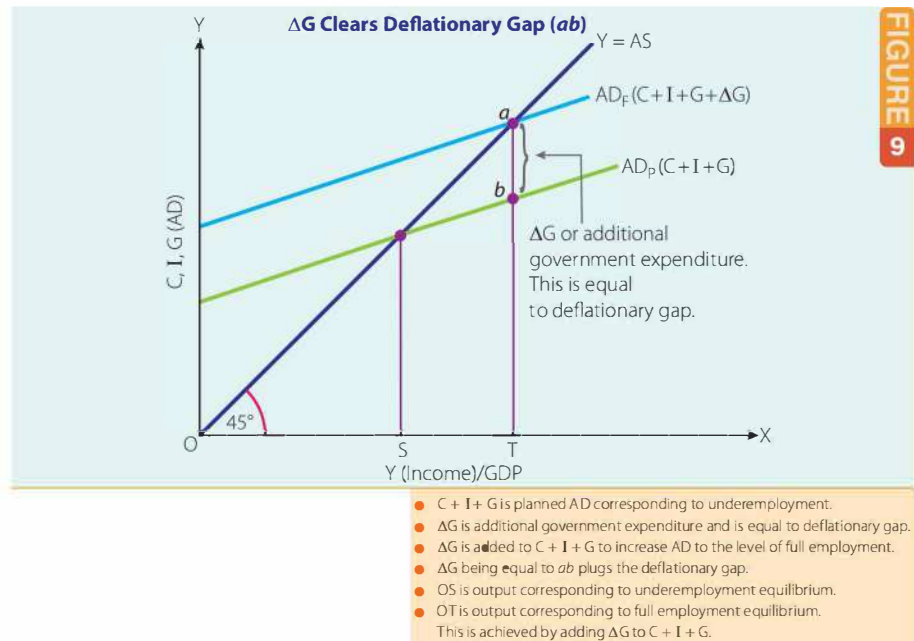


Fig. 9 shows the situation of deficient demand in a 3-sector economy. It also shows how this deficient demand is corrected through additional government expenditure (ΔG). Deficient demand (deflationary gap) is indicated by *ab* and the government fills up this deficiency by making additional expenditure exactly equal to *ab*.

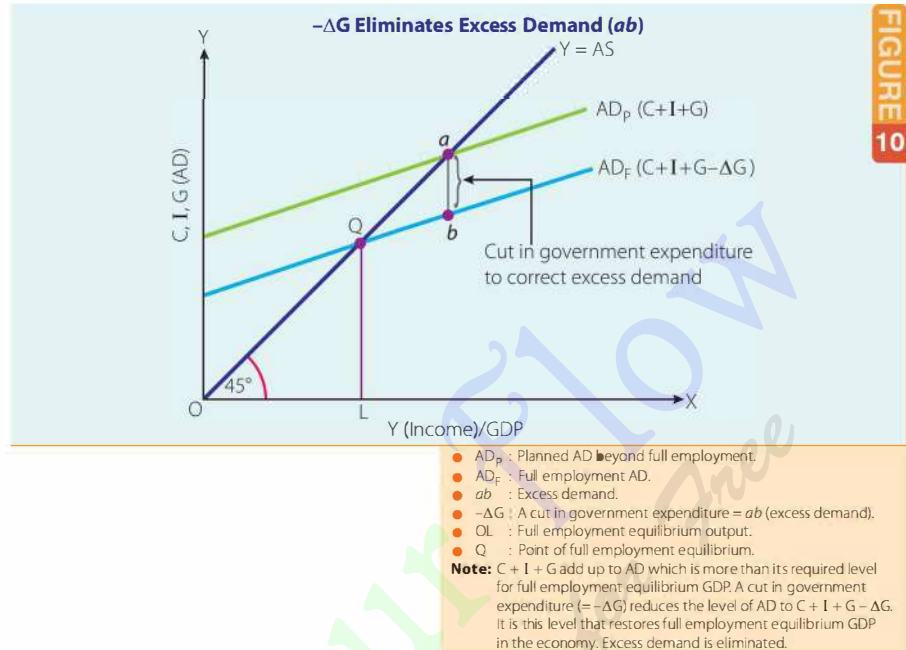
The level of AD which earlier was $C + I + G$ (corresponding to underemployment equilibrium) is now raised to $C + I + G + \Delta G$ (corresponding to full employment equilibrium). Equilibrium level of output which earlier was OS is now raised to OT. Now, equilibrium is achieved with full employment of the factors of production. Low level equilibrium trap is broken. Thus, ΔG acts as an injection in the circular flow of income in the economy.

ΔG (additional government expenditure) acts as an injection in the circular flow of income in the economy. It raises the level of AD to the extent required for full employment of the factors of production. The economy breaks the low level equilibrium trap. Actual output = Potential output (= full employment level of output), and the state of deflation and unemployment is corrected.

Excess Demand in a 3-Sector Economy and its Correction by the Government

Excess demand is a situation of inflationary gap. The economy is over-heated: AD rises beyond full employment level of AS. The general price level tends to rise, while the level of real output remains constant. Such a situation often pushes the economy into a wage-price spiral, as already noted. The government intervention becomes essential to check the rising AD. It does it by way of reducing its own expenditure.

Fig. 10 shows the situation of excess demand/inflationary gap in a 3-sector economy, and the way it is eliminated by a cut in government expenditure.



OL is full employment equilibrium output. It corresponds to AD_f which is full employment level of AD. However, there is excess demand in the economy, as indicated by AD_p . Excess demand = $AD_p - AD_f = ab$. To eliminate this excess demand, the government reduces its expenditure by ab . Reduction in government expenditure is indicated by $-\Delta G (= ab)$. As a result, the level of AD is brought down from AD_p to AD_f . The economy is brought back to point Q which is a point of full employment equilibrium. Thus, economic stability is restored.

• Discretionary and Non-discretionary Fiscal Instruments

Non-discretionary fiscal instruments refer to those fiscal instruments which start operating automatically on their own. These are also called **auto-stabilisers**. On the other hand, discretionary instruments are those instruments which are planned by the government to correct the situations of excess and deficient demand. We have already discussed in details various discretionary instruments. As regards non-discretionary instruments, some illustrations may prove to be useful.

A rise in AD automatically raises tax revenue and a fall in AD automatically decreases tax revenue. Accordingly, taxation acts as an auto-stabiliser in the economy. It lowers AD when excess demand is to be corrected. And, it raises AD when deficient demand is to be corrected. Grants and subsidies are other examples of non-discretionary fiscal instruments or auto-stabilisers in the economy. During periods of boom (when excess AD needs to be corrected), grants and subsidies come down on their own, causing a cut in government expenditure and thereby a cut in AD. During periods of depression, on the other hand, grants and subsidies tend to rise. It implies a rise in government expenditure and therefore, a rise in AD, as desired to correct deficient demand during depression.

GOVERNMENT BUDGET AND THE ECONOMY

TO
DO

- *Concept of Government Budget*
- *Objectives of Government Budget*
- *Structure (or Components) of the Budget*
- *Budget Receipts—Revenue Receipts*
—*Capital Receipts*
- *Budget Expenditure—Revenue Expenditure*
—*Capital Expenditure*
- *Budget Deficit—Revenue Deficit*
—*Fiscal Deficit*
—*Primary Deficit*
- *Balanced and Unbalanced Budget*

I. CONCEPT OF GOVERNMENT BUDGET

February-1 is a well known date in India when the Finance Minister presents annual budget of the government for its approval by the parliament. The budget unfolds:

- (i) the financial performance of the government over the past one year, and
- (ii) the financial programmes and policies of the government for the next one year.

As regards financial performance of the government, it is more like a description of what happened during the past one year. Focus is placed largely on the other part of the budget describing programmes and policies of the government for the next one year.

The programmes and policies of the government (as presented in the budget) are known as '**Budgetary Policy**' of the government, or '**Fiscal Policy**' of the government. It has two aspects: (i) revenue aspect, and

(ii) expenditure aspect. On the revenue side, the budgetary policy reveals expected receipts of the government. On the expenditure side, it reveals expected expenditure of the government.

It is by managing the budgetary revenue and budgetary expenditure that the government tries to achieve 'growth with stability'.

Thus, government budget is a statement of expected receipts and expected expenditure of the government (for the financial year to come) that reveals budgetary policy of the government to achieve the twin objective of growth with stability.

Government budget is a statement of expected receipts and expected expenditure of the government (for the financial year to come) that reveals budgetary policy of the government to achieve the twin objective of growth with stability.

2. OBJECTIVES OF GOVERNMENT BUDGET

Following is a brief description of some principal objectives of government budget (with special reference to the Indian economy):

- (1) **GDP Growth:** GDP growth is the central objective of government budgetary policy. It is achieved in two ways: (i) by making public investment expenditure, and (ii) by inducing private investment expenditure (through tax rebates and subsidies).
- (2) **Allocation of Resources:** Private enterprises will always desire to allocate resources to those areas of production where profits are high. However, it is possible that such areas of production (like production of alcohol) may not promote social welfare. Through its budgetary policy, the government of a country directs the **allocation of resources in a manner such that there is a balance between the goals of profit maximisation and social welfare.** Production of goods which are injurious to health (like Cigarettes and Whisky) is discouraged through heavy taxation. On the other hand, production of 'socially useful goods' (like, 'Khadi') is encouraged through subsidies.
- (3) **Provision of Public Goods:** Supply and demand forces in a market economy do not allow enough production of public goods. These are those goods which satisfy collective needs of the people. Law & order and defence of the country are important examples of public goods. It is through budgetary allocation of funds that these goods are sufficiently provided to the people.

(4) Redistribution of Income and Wealth: Budget of the government shows its comprehensive exercise on the taxation and subsidies. The government uses fiscal instruments of taxation and subsidies with a view to improving the distribution of income and wealth in the economy. **Equitable distribution of income and wealth is a sign of social justice which is the principal objective of any welfare state as in India.** Distribution of income and wealth is improved in two ways:

(i) By imposing taxes on rich and giving subsidies to the poor, and

(ii) By supplying food grains to BPL population at a low price.

Example: Free distribution of LPG connection to the poor people.

(5) Balanced Regional Growth: The budgetary policy places priority on the development of backward regions in the country. This is achieved through liberal tax laws for the backward regions. Establishment of SEZ (special economic zones) in the backward regions through liberal tax laws may be cited as an example.

(6) Employment Opportunities: Budgetary policy focuses on the generation of employment opportunities through investment in public enterprises. Budgetary provisions are made for schemes like MGNREGA offering employment to poorer sections of the society.

(7) Economic Stability: Free play of market forces (or the forces of supply and demand) are bound to generate trade cycles, also called business cycles. These refer to the phases of recession, depression, recovery and boom in the economy. The government of a country is always committed to save the economy from business cycles. Budget is used as an important policy instrument to correct the situations of deflation and inflation. By doing it, the government tries to achieve the state of economic stability. Economic stability stimulates the inducement to invest and increases the rate of growth and development.

Briefly, the government tries to manage its revenue and expenditure in such a way that the GDP growth is accelerated, inflationary & deflationary pressures are eliminated, and inequality is reduced. This imparts stability to the process of growth.

- Q. What do you mean by 'Fiscal Discipline'? What happens if fiscal discipline is not maintained in the economy?
- Ans. Fiscal discipline refers to the state of balance between revenues and expenditures of the government. It calls for a necessary check on the expenditures in view of the limited revenues of the government. Lack of fiscal discipline often causes excess expenditure. It leads to inflationary spiral. Cost of production starts rising. High cost of production hurts the process of investment. Eventually, GDP growth is hurt and its instability is challenged.

3. STRUCTURE OF THE BUDGET OR COMPONENTS OF THE BUDGET

Structure of the budget refers to the components of budget. Two broad components of the government budget are:

- (i) **Budget Receipts** (including revenue receipts and capital receipts), and
- (ii) **Budget Expenditure** (including revenue expenditure and capital expenditure).

Details of both these components are discussed as under:

Budget Receipts

Budget receipts refer to estimated money receipts of the government from all sources during the fiscal year.

Broadly, the budget receipts are classified as:

- (1) Revenue Receipts, and
- (2) Capital Receipts.

Following are the details:

(1) Revenue Receipts

Revenue receipts are those money receipts of the government which show the following two characteristics:

- (i) **These receipts do not create any corresponding liability for the government.** **Example:** Tax receipts. Tax is a revenue receipt because it does not involve any corresponding liability for the government. Tax is a unilateral (or one-sided) compulsory payment to the government.
- (ii) **These receipts do not cause any reduction in assets of the government.** **Example:** Tax receipts do not lead to any reduction

in assets of the government. In contrast, if government receives money by selling its share of some company (say Air India), it causes reduction in assets of the government. These are therefore, not to be treated as revenue receipts.

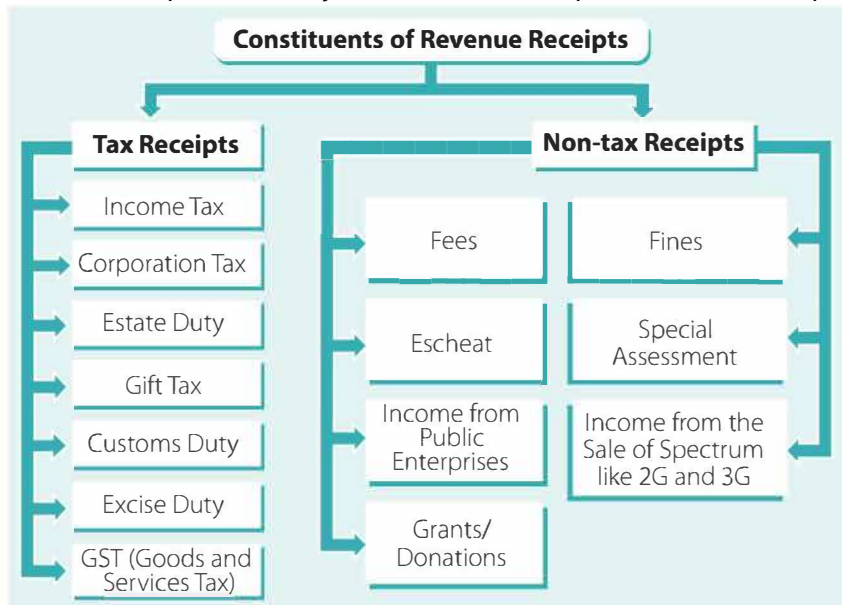
In short, **revenue receipts of the government are those money receipts which do not create a liability for the government and as well do not lead to reduction in assets of the government.**

HOTS

Q. Is borrowing by the government a revenue receipt?

Ans. No, because it creates a liability (for the government) of repayment.

Revenue receipts are broadly classified as tax receipts and non-tax receipts.



Tax Receipts

A tax is a compulsory payment to the government by the households, firms or other institutional units. The taxpayer cannot expect any service or benefit from the government, in return.

A **tax** is a compulsory payment made by an individual, household or a firm to the government without reference to anything in return.

Types of Taxes

Taxes are broadly classified as:

- (i) Progressive and Regressive Taxes,

- (ii) Value Added and Specific Taxes, and
- (iii) Direct and Indirect Taxes.

(i) Progressive and Regressive Taxes

Taxes are classified as 'progressive' and 'regressive' depending on the real burden of taxation. Details are as under:

- (a) **Progressive Tax:** A tax is said to be progressive when the rate of tax increases with an increase in income. So that, the real burden of the tax is more on the rich and less on the poor. **Example:** Tax rate is 10% for income between ₹ 2 to ₹ 5 lakh. It is 15% for income between ₹ 5 to ₹ 10 lakh, and so on. Thus, tax rate increases as the level of income increases.
- (b) **Regressive Tax:** A tax is said to be regressive when it causes a greater real burden on the poor than the rich. If a person with ₹ 1,00,000 as his monthly income pays 10% income tax (or pays ₹ 10,000), he still has a balance of ₹ 90,000 per month. But if a person with ₹ 5,000 as his monthly income has to pay 10% income tax (or pays ₹ 500), it might mean a cut in his essential consumption leading to poor diet and therefore, poor health. Thus, a constant rate of taxation on the rich and the poor is a regressive tax, as it causes a greater real burden on the poor than the rich.

(ii) Value Added Tax or VAT and Specific Taxes

Depending upon tax base, taxes can be classified as:

- (a) **Value Added Tax or VAT:** Value added tax is an indirect tax which is imposed on 'Value Added' at the various stages of production. Value added refers to the difference between value of output and value of intermediate consumption. It is imposed at each stage of production. GST is an important form of value added tax.
- (b) **Specific Tax:** When a tax is levied on a commodity on the basis of its units, size or weight, it is called the specific tax.

(iii) Direct and Indirect Taxes

Taxes are classified as direct and indirect depending on their final burden.

- (a) **Direct Tax:** A direct tax is the one the final burden of which is borne by the person on whom it is imposed. For example, income tax is imposed on the income of a person and he himself

bears its burden. The burden of tax cannot be shifted to any other person. Income tax, corporation tax, gift tax, wealth tax, are examples of direct tax.

According to **Prof. Dalton**, "A direct tax is really paid by the person on whom it is legally imposed."

- (b) **Indirect Tax:** An indirect tax is the one whose initial burden or impact is on one person but he succeeds in shifting the burden to another persons. GST is an important example. It is levied on the producers. They are to pay this tax to the government. But they charge this tax from the buyers by adding it to the price of the goods sold.

According to **Prof. Dalton**, "An indirect tax is imposed on one person but paid partly or wholly by another."

Did You Know it?

Certain taxes are called 'paper taxes'. These refer to the taxes like gift tax in India which carry their significance only on paper. **These taxes are of little or no significance in terms of their revenue yield.**

Direct Tax and Indirect Tax—The Difference

Direct Tax	Indirect Tax
(i) It is the tax which is finally paid by the person on whom it is legally imposed.	(i) It is the tax which is imposed on one person but is paid by another.
(ii) The burden of direct taxes cannot be shifted to other person.	(ii) The burden of indirect taxes can be shifted to others.
(iii) Direct taxes are generally progressive in nature.	(iii) Indirect taxes are generally regressive in nature.
Examples: Income tax, corporate profit tax.	Examples: GST, customs duty.

HOTS

Q. Explain through an example, how the burden of an indirect tax is shifted.

Ans. GST is an indirect tax. A shopkeeper pays GST to the government. But, the shopkeeper recovers this tax from the customers as a part of price of the commodity sold. So, impact of GST (an indirect tax) is ultimately shifted to the consumers.

Non-tax Receipts

Non-tax receipts are those receipts which arise from sources other than taxes. Some of the non-tax receipts are as follows:

- (i) **Fees:** A fee is a payment to the government for the services that it renders to the people.

Examples: Land registration fees, birth and death registration fees, passport fees, court fees, etc.

It is to be noted that **fee is not a payment (price) for commercial service**. It is a payment for administrative and judicial services provided to the people.

- (ii) **Fines:** Fines are those payments which are made by the law breakers to the government. These are economic punishments for breaking laws. The aim is not to earn revenue, but to make people respectful to the laws.
- (iii) **Escheat:** Escheat refers to that income of the state which arises out of the property left by the people without a legal heir. There are no claimants of such property. The government makes revenue out of it.
- (iv) **Special Assessment:** Special assessment is that payment which is made by the owners of those properties whose value has appreciated due to developmental activities of the government. **Example:** When as a result of construction of roads or provision of sewerage system or construction of drains, etc., value of the neighbouring property or its rental value appreciates, then a part of the developmental expenditure is recovered from the owners of such property by way of special assessment.
- (v) **Income from Public Enterprises:** Several enterprises are owned by the government. **Examples:** Indian Railways, Nangal Fertilizer Factory, Indian Oil, Bhilai Steel Plant, etc. Profit of these enterprises are a source of revenue for the government.
- (vi) **Income from the Sale of Spectrum like 2G and 3G:** Income from the sale of spectrum has emerged as a significant source of non-tax receipts of the government.
- (vii) **Grants/Donations:** Grants are also a source of government revenue. It is very common for the people to offer donations and grants to the government when there are natural calamities like earthquake, floods and famines.

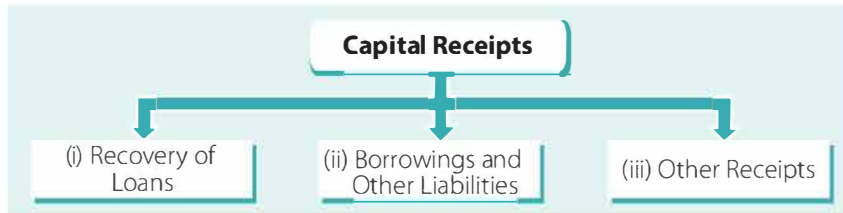
(2) Capital Receipts

Capital receipts are those money receipts of the government which show the following two characteristics:

- (i) **These receipts create a liability for the government.** For example, loans by the government are a liability. These are to be paid back. These are, therefore, the capital receipts of the government.
- (ii) **These receipts cause reduction in assets of the government.** As stated earlier, money received by the government by selling its shares (say of Air India) would cause reduction in assets of the government. These are, therefore, to be treated as capital receipts.

In short, capital receipts are those money receipts of the government which either create a liability for the government or cause a reduction in its assets.

In India, capital receipts of the government budget are often classified as under:



- (i) **Recovery of Loans:** The central government offers loans to the state governments to cope with financial crises. When these loans are recovered, assets of the government are reduced. Accordingly, these are classified as capital receipts.
- (ii) **Borrowings and Other Liabilities:** While lending creates assets, borrowing creates liability. Accordingly, borrowings are to be treated as capital receipts. It may be noted that the government borrows money from:
 - (a) the general public. [Borrowings from the general public are called market borrowings.]
 - (b) the Reserve Bank of India.
 - (c) the rest of the world.
- (iii) **Other Receipts:** These include items like 'disinvestment'. It is the opposite of investment. Disinvestment occurs when the government sells off its shares of public sector enterprises to private sector. It involves transfer of ownership of public sector enterprises to the private entrepreneurs, leading to privatisation. Money received through disinvestment is treated as capital receipt because it causes reduction in assets of the government.

HOTS

Q. 1. What is disinvestment? Does it refer to revenue receipt or capital receipt of the government? Give an example.

Ans. Disinvestment refers to withdrawal of existing investment.

Example: The Government of India is making disinvestment by selling its shares in the Maruti Udyog. It is a capital receipt of the government, as it reduces assets of the government.

Q. 2. How are revenue receipts different from capital receipts in terms of their meaning and significance?

Ans. Following observations highlight the difference between revenue receipts and capital receipts:

Revenue Receipts	Capital Receipts
<p>(i) Difference in Meaning:</p> <p>Revenue receipts do not impact asset-liability status of the government.</p> <p>Assets and liabilities are not increased or decreased.</p>	<p>Capital receipts impact asset-liability status of the government.</p> <p>Assets are lowered.</p> <p>Or</p> <p>Liabilities are raised.</p>
<p>(ii) Difference in Significance:</p> <p>(a) Revenue receipts do not leave any burden on future generations.</p> <p>(b) High revenue receipts (as tax receipts) point to sound financial health of the economy.</p>	<p>(a) Capital receipts often leave burden on future generations.</p> <p>Example: Borrowings leave the burden on future generations for the repayment of loans.</p> <p>(b) High capital receipts (borrowings and disinvestment) point to poor financial health of the economy.</p>

Budget Expenditure

Budget expenditure refers to estimated expenditure of the government during the fiscal year.

Like budget receipts, budget expenditure of the government is broadly classified as:

- (1) Revenue Expenditure, and
- (2) Capital Expenditure.

(1) Revenue Expenditure

Revenue expenditure of the government is that expenditure which shows the following two characteristics:

- (i) **It does not create any asset for the government.** For example, expenditure by the government on old-age pensions, salaries and scholarships are to be treated as revenue expenditure. Because this does not lead to any type of asset formation.
- (ii) **It does not cause any reduction in liability of the government.** Expenditure by way of grants to the state government to cope with natural calamities (like floods and earthquakes) does not reduce financial liability of the central government in any manner. Accordingly, this is to be treated as revenue expenditure.

In short, **revenue expenditure refers to estimated expenditure of the government in a fiscal year which does not create assets or causes a reduction in liabilities.**

Important Items of Revenue Expenditure in the Indian Government Budget

These are:

- (i) Wage bill of the government.
- (ii) Interest payments.
- (iii) Expenditure on subsidies.
- (iv) Defence purchases.

Important

As a matter of convention, all grants given by the centre to the state governments (and the governments of Union territories) are treated as revenue expenditure, even when some grants may result in the creation of assets.

(2) Capital Expenditure

Capital expenditure of the government is that expenditure which shows the following two characteristics:

- (i) **It creates assets for the government.** Equity (or shares) of the domestic or multinational corporations purchased by the government may be cited as an example.
- (ii) **It causes reduction in liabilities of the government.** Repayment of loans certainly reduces liability of the government. Accordingly, this is to be treated as capital expenditure.

In short, **capital expenditure refers to the estimated expenditure of the government in a fiscal year which creates assets or causes a reduction in liabilities.**

Important Items of Capital Expenditure in the Indian Government Budget

These are:

- (i) Expenditure on land and building.
- (ii) Expenditure on machinery and equipment.
- (iii) Purchase of shares.
- (iv) Loans by the central government to the state governments or state corporations.

Plan and Non-plan Expenditure

Budget expenditure (revenue expenditure + capital expenditure) is also classified as plan and non-plan expenditure. Following is the difference:

Did You Know it?

In India, non-plan expenditure is a significant part of the total government expenditure. Which is why fiscal discipline in the country often remains a serious challenge.

(1) **Plan Expenditure:** Plan expenditure refers to that expenditure which relates to (i) specified plans and programmes of development, and (ii) assistance of the central government to the state governments. It includes both revenue expenditure (like assistance to the states) and capital expenditure (like expenditure on the construction of roads, bridges and hospitals).

(2) **Non-plan Expenditure:** Broadly, all expenditure other than plan expenditure is classified as non-plan expenditure. Specifically, non-plan expenditure relates to expenditure on routine functioning of the government. Or, it includes expenditure on such services as of law and order, defence and subsidies.

Thus, we can write that:

$$\text{Budget Expenditure} = \text{Revenue expenditure} + \text{Capital expenditure}$$

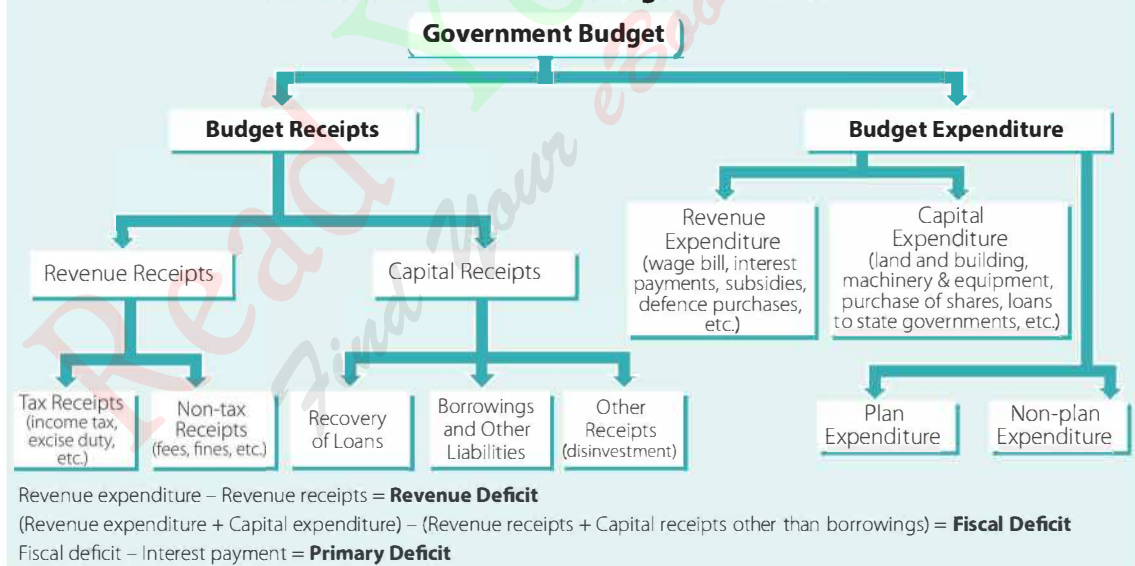
Or

$$\text{Budget Expenditure} = \text{Plan expenditure} + \text{Non-plan expenditure}$$

Note

After the abolition of planning commission, the government is also considering to abolish the classification of budgetary expenditure as plan and non-plan expenditure.

Structure of Government Budget at a Glance



[**Note:** Structure of the Government Budget may also be studied in terms of (i) **Revenue Budget**, and (ii) **Capital Budget**. Revenue Budget includes revenue receipts and revenue expenditure of the government. Capital Budget includes capital receipts and capital expenditure of the government.]

Q. 1. How are revenue expenditure different from capital expenditure in terms of their meaning and significance?

Ans. Following observations highlight the difference between revenue expenditure and capital expenditure:

Revenue Expenditure	Capital Expenditure
<p>(i) Difference in Meaning: Revenue expenditure does not impact asset-liability status of the government. Assets and liabilities are not increased or decreased.</p> <p>(ii) Difference in Significance:</p> <p>(a) Revenue expenditure (subsidies and law & order) focuses on welfare of the people. It does not directly contribute to GDP growth.</p> <p>(b) High revenue expenditure by the government (by way of subsidies or old-age pensions) points to poverty of the people or backwardness of the economy.</p>	<p>Capital expenditure impacts asset-liability status of the government. Assets are raised. Or Liabilities are lowered.</p> <p>(a) Capital expenditure (public investment) focuses on GDP growth. It directly contributes to GDP growth.</p> <p>(b) High capital expenditure by the government points to the lack of private investment in the economy. Capital expenditure by the government is raised when the economy is suffering from deflationary gap.</p>

Q. 2. How are revenue budget different from capital budget?

Ans.

Revenue Budget	Capital Budget
<p>(i) Revenue budget includes revenue receipts and revenue expenditure of the government.</p> <p>(ii) Revenue budget does not impact asset-liability status of the government.</p> <p>(iii) Revenue budget focuses on welfare of the people by way of DBT (direct benefit transfers). It does not directly contribute to GDP growth.</p> <p>(iv) High revenue receipts in the revenue budget lead to low capital receipts (borrowings and disinvestment) in the capital budget. It is a sign of a growing economy.</p>	<p>(i) Capital budget includes capital receipts and capital expenditure of the government.</p> <p>(ii) Capital budget impact asset-liability status of the government.</p> <p>(iii) Capital budget focuses on GDP growth (by way of public investment).</p> <p>(iv) High capital receipts are often related to compulsions of borrowings. It is a sign of a backward economy.</p>

4. BUDGET DEFICIT: REVENUE DEFICIT, FISCAL DEFICIT AND PRIMARY DEFICIT [MEANING, TYPES AND MEASUREMENT]

What is Budget Deficit?

Types of Budget

- **Balanced Budget:**
Budget Receipts
= Budget Expenditure
- **Deficit Budget:**
Budget Receipts
< Budget Expenditure
- **Surplus Budget:**
Budget Receipts
> Budget Expenditure

Budget deficit (also called government deficit) refers to a situation when budget expenditures of the government are greater than the budget receipts. Or, it is the excess of total expenditure (revenue expenditure and capital expenditure) over and above the total receipts (revenue receipts and capital receipts) of the government.

$$\text{Budget Deficit} = \text{Total expenditure (Revenue expenditure + Capital expenditure)} - \text{Total receipts (Revenue receipts + Capital receipts)}$$

$$BD = BE - BR, \text{ when } BE > BR$$

(Here, BD = Budget deficit; BE = Budget expenditure; BR = Budget receipts.)

Types and Measurement

With reference to the budget of the Government of India, there are three important types of budget deficit. These are:

- (1) Revenue Deficit,
- (2) Fiscal Deficit, and
- (3) Primary Deficit.

(1) Revenue Deficit

Revenue deficit is the excess of revenue expenditure over revenue receipts.

$$\text{Revenue Deficit} = \text{Revenue expenditure} - \text{Revenue receipts}$$

$$RD = RE - RR, \text{ when } RE > RR$$

(Here, RD = Revenue deficit; RE = Revenue expenditure; RR = Revenue receipts.)

Implications

- (i) Because of revenue deficit, the government may have to cut its expenditure on several welfare programmes in the country. This leads to loss of social welfare.
- (ii) The government may have to raise funds through borrowing. This raises liabilities of the government and lowers its credit-worthiness.
- (iii) The government may be compelled for disinvestment—selling its ownership of public enterprises. The ownership of public enterprises

may be lost to foreign companies. Consequently, economic control of the foreigners may increase in the domestic economy.

Three Ways of Managing Revenue Deficit

- (i) **Borrowing** from the general public, RBI or rest of the world.
- (ii) **Disinvestment** by way of selling its ownership (shares) of public enterprises.
- (iii) **Cut in expenditure** (subsidies in particular).

(2) Fiscal Deficit

Fiscal deficit is the excess of total expenditure over total receipts (other than borrowings).

Fiscal Deficit = Total expenditure (Revenue expenditure + Capital expenditure) – Total receipts other than borrowings (Revenue receipts + Capital receipts other than borrowings)

FD = BE – BR other than borrowings, when BE > BR other than borrowings

(Here, FD = Fiscal deficit; BE = Budget expenditure; BR = Budget receipts.)

In fact, **fiscal deficit is the estimation of total borrowings by the government**. It is often called 'Gross Fiscal Deficit'.

Gross Fiscal Deficit = (i) Borrowing from RBI + (ii) Borrowing from abroad + (iii) Net borrowing at home

Gross fiscal deficit shows estimated borrowing by the government to cope with its expenditures during the year. Often it is expressed as a percentage of GDP.

Implications

Fiscal deficit is an estimate of borrowings by the government. **Greater fiscal deficit implies greater borrowings by the government**. It has following implications:

- (i) **Inflationary Spiral:** Borrowing from RBI is often linked to inflationary spiral in the economy. This is how it happens: Borrowing from RBI increases money supply in the economy. Increase in money supply leads to increase in the general price level. A persistent increase in the general price level (over a period of time) leads to inflationary spiral. [Borrowing from RBI → Increase in money supply → Increase in prices → Inflationary spiral.]
- (ii) **National Debt:** Fiscal deficit leads to national debt. It hinders GDP growth. Because, a significant percentage of national income is used up to pay the past debts.

Did You Know it?

High fiscal deficit leads to low GDP growth because of two reasons:

- (i) The government lacks funds for investment, and
- (ii) Owing to high fiscal deficit, taxes are raised. This reduces disposable income of the people. Low disposable income leads to low AD and their low inducement to invest in the economy.

Also, low GDP growth leads to high fiscal deficit. Because, low GDP generates low revenue for the government.

(iii) Vicious Circle of High Fiscal Deficit and Low GDP Growth: Constantly high fiscal deficit leads to a situation where: (a) GDP growth remains low because of high fiscal deficit, and (b) fiscal deficit remains high because of low GDP growth.

[High fiscal deficit → Low GDP growth → High fiscal deficit.]

(iv) Crowding-out: High fiscal deficit leads to 'Crowding-out Effect'. This is a situation when high borrowings by the government (owing to high fiscal deficit) reduces the availability of funds (in the money market) for the private investors. Accordingly, overall investment in the economy is reduced.

(v) Erosion of Government Credibility: High fiscal deficit (and consequently, the mounting national debt) erodes credibility of the government in the domestic as well as international money market. 'Credit rating' of the government (and the economy) is lowered. Owing to lower credit rating, global investors start withdrawing their investment from the domestic economy. Consequently, GDP growth is reduced.

Briefly, fiscal deficit must NOT be allowed to rise beyond manageable limits (about 3 per cent of GDP is considered to be manageable). High fiscal deficit signals fiscal indiscipline. It points to a situation when GDP growth is low and unemployment is high. The economy slips into stagnation and revival becomes difficult without FDI (foreign direct investment).

(3) Primary Deficit

Primary deficit is the difference between fiscal deficit and interest payment.

Primary Deficit = Fiscal deficit – Interest payment

$$PD = FD - IP$$

(Here, PD = Primary deficit; FD = Fiscal deficit; IP = Interest payment.)


While fiscal deficit shows borrowing requirement of the government **inclusive** of interest payment on the past loans, primary deficit shows borrowing requirement of the government **exclusive** of interest payment. In other words, primary deficit indicates government borrowings on account of current year expenditures and current year receipts of the government.

Implications

Implications of primary deficit are similar to those of fiscal deficit. The only difference is that primary deficit does not carry the load of interest payments on account of the past loans. Primary deficit

just indicates borrowings when: **Current year expenditure > Current year revenue.**

Revenue Deficit, Fiscal Deficit and Primary Deficit—The Difference

Revenue Deficit	Fiscal Deficit	Primary Deficit	
<p>(i) It is the excess of revenue expenditure over revenue receipts.</p> <p>Revenue Deficit = Revenue expenditure – Revenue receipts</p>	<p>(i) It is the excess of total expenditure over total receipts, other than borrowings.</p> <p>Fiscal Deficit = Budget expenditure – Budget receipts other than borrowings</p>	<p>(i) It is the difference between fiscal deficit and interest payment.</p> <p>Primary Deficit = Fiscal deficit – Interest payment</p>	
<p>(ii) It reflects the need for borrowings by the government to manage its budgetary expenditure.</p>	<p>(ii) It reflects the extent of borrowings by the government when interest payment is accounted for.</p>	<p>(ii) It reflects the extent of borrowings by the government when interest payment is not accounted for.</p>	
<p>(iii) High revenue deficit arises largely because of low tax receipts and high expenditure on subsidies. It points to overall poverty in the country.</p>	<p>(iii) High fiscal deficit (in terms of borrowings) points to the lack of fiscal discipline in the country. It is a hurdle in the process of GDP growth.</p>	<p>(iii) Primary deficit points to the need for borrowings even when interest payment on the existing loans is ignored. It reflects continuous lack of fiscal discipline in the country.</p>	

HOTS

Q. 1. What does zero primary deficit mean?

Ans. It means the government resorts to borrowing only to clear the backlog of interest payments. There are no borrowing because of the excess of current year expenditure over the current year revenue. Simply because, current year expenditure happens to be equal to current year revenue. It is a sign of fiscal discipline or fiscal responsibility on the part of the government.

Q. 2. A government budget shows a primary deficit of ₹ 6,900 crore. The revenue expenditure on interest payment is ₹ 400 crore. How much is the fiscal deficit?

Ans. Fiscal Deficit = Primary deficit + Interest payment
= ₹ 6,900 crore + ₹ 400 crore
= ₹ 7,300 crore.

Q. 3. How can the gulf between capital expenditure and capital receipts be reduced without borrowing? Suggest two ways.

Ans. (i) The government can resort to disinvestment: selling its stake in public sector enterprises, and
(ii) The government can sell its surplus land.

Q. 4. Can there be a fiscal deficit without a revenue deficit?

Ans. Obviously yes. Because fiscal deficit is worked out by accounting for both the revenue and capital receipts and expenditures of the government. So that, even when revenue receipts and revenue expenditure are in a state of balance, there could be excess of capital expenditure over capital receipts, causing fiscal deficit.

An Illustration on the Estimation of Various Types of Budget Deficits

The illustration is based on the following set of data drawn from Economic Survey, 2018-19.

Revised Estimates on the Budgetary Status of the Government of India (2018-19)

Items	₹ in crore
1. Revenue Receipts	17,29,682
2. Revenue Expenditure	21,40,612
3. Capital Receipts	7,27,553
4. Capital Expenditure	3,16,623
5. Total Receipts (1+3)	24,57,235
6. Total Expenditure (2+4)	24,57,235
7. Recoveries of Loans and Other Receipts	93,155
8. Borrowings and Other Liabilities	6,34,398
9. Interest Payment	5,87,570

[Source: Economic Survey, 2018-19]

Using the estimation procedure discussed earlier, we get the following estimates of different types of budget deficit:

$$\begin{aligned}
 (1) \text{ Revenue Deficit} &= \text{Revenue Expenditure} - \text{Revenue Receipts} \\
 &= ₹ 21,40,612 \text{ crore} - ₹ 17,29,682 \text{ crore} \\
 &= ₹ 4,10,930 \text{ crore}
 \end{aligned}$$

$$\begin{aligned}
 (2) \text{ Fiscal Deficit} &= \text{Total Expenditure} - (\text{Revenue Receipts} + \text{Recoveries of Loans and Other Receipts}) \\
 &= ₹ 24,57,235 \text{ crore} - (₹ 17,29,682 \text{ crore} + ₹ 93,155 \text{ crore}) \\
 &= ₹ 6,34,398 \text{ crore}
 \end{aligned}$$

Or

$$\begin{aligned}
 \text{Fiscal Deficit} &= \text{Borrowings and Other Liabilities} \\
 &= ₹ 6,34,398 \text{ crore}
 \end{aligned}$$

$$\begin{aligned}
 (3) \text{ Primary Deficit} &= \text{Fiscal Deficit} - \text{Interest Payment} \\
 &= ₹ 6,34,398 \text{ crore} - ₹ 5,87,570 \text{ crore} \\
 &= ₹ 46,828 \text{ crore}
 \end{aligned}$$

[Implying that:

$$\begin{aligned}
 \text{Fiscal Deficit} &= \text{Primary Deficit} + \text{Interest Payment} \\
 &= ₹ 46,828 \text{ crore} + ₹ 5,87,570 \text{ crore} \\
 &= ₹ 6,34,398 \text{ crore}]
 \end{aligned}$$

5. BALANCED AND UNBALANCED BUDGET

(I) Balanced Budget

A balanced budget is that budget in which government receipts are equal to government expenditure.

Balanced Budget:

$$\text{Government Receipts} = \text{Government Expenditure}$$

Merits and Demerits of Balanced Budget

Merits:

- (i) The government does not indulge in wasteful expenditure.
- (ii) A balanced budget ensures financial stability. It signals fiscal discipline in the economy.

However, during the general depression of 1930's, the policy of balanced budget was severely criticised. It was then that the following shortcomings of a balanced budget were highlighted.

Shortcomings or Demerits:

- (i) Balanced budget does not offer any solution to the problem of unemployment. Particularly, when unemployment is linked with the lack of AD. It happened in most European Countries during 1930's.
- (ii) Balanced budget is not conducive to growth in less developed countries. Kick-start of growth in these economies depends on a big-push of investment expenditure by the government. This often leads to deficit budget.

Does Balanced Budget Leave Aggregate Demand Unaffected in the Economy?

No is the obvious reply. This is how it happens:

Balanced Budget means:

$$\text{Government receipts} = \text{Government expenditure}$$

Assume tax as the only source of government receipts,

$$\text{Tax of (say) ₹ 100} = \text{Expenditure of ₹ 100}$$

Expenditure of ₹ 100 increases AD by ₹ 100.

Tax of ₹ 100 does not decrease AD by ₹ 100.

Tax of ₹ 100 decreases disposable income of the people by ₹ 100.

If MPC is assumed to be 0.5, then reduction in disposable income by ₹ 100 would reduce consumption (expenditure) by $0.5 \times ₹ 100 = ₹ 50$ which is 'MPC times' decrease in income.

Thus, because of tax of ₹ 100, AD would decrease by ₹ 50 only.

Net increase in AD = ₹ 100 (increase in AD owing to government expenditure)

$$- ₹ 50 \text{ (decrease in AD owing to tax)} = ₹ 50.$$

Thus, a balanced budget is expected to increase AD. Accordingly, balanced budget is a good policy instrument to increase AD when the economy is close to achieving full employment.

(2) Unbalanced Budget

An unbalanced budget is that budget in which receipts and expenditures of the government are not equal. This may be a situation of: (i) Surplus Budget, or (ii) Deficit Budget.

(i) Surplus Budget

This is a budget in which government receipts are greater than government expenditures.

Surplus Budget:

Estimated Government Receipts > Estimated Government Expenditures

Merits and Demerits of Surplus Budget

Merits:

Surplus budget (when, receipts > expenditures) is desired when the economy is battling inflation due to excess AD. Surplus budget plugs the inflationary gap by lowering the level of AD. AD is lowered on account of (a) rise in revenue collection by the government, and (b) fall in government expenditure.

Demerits:

As surplus budget tends to lower the level of AD in the economy, it is not desired during periods of depression. If surplus budget policy is constantly pursued by the government, AD may reduce to a level that causes unemployment in the economy. The economy may be driven into a low level equilibrium trap.

(ii) Deficit Budget

This is a budget in which government expenditures are greater than government receipts.

Deficit Budget:

Estimated Government Expenditures > Estimated Government Receipts

Keynes and other modern economists stress significance of deficit budget, highlighting its merits.

Merits and Demerits of Deficit Budget

Merits:

Keynes recommends deficit budget as a key instrument to correct the state of depression. According to him, depression is that phase of economic activity when the level of investment is low owing to the low level of AD. Consequently, planned output is much lower than the

full employment level of output. Unemployment becomes a national problem. Deficit budget raises the level of AD in two ways:

- (a) Directly by way of high government expenditure, and
- (b) Indirectly by inducing greater (investment and consumption) expenditure by the people.

Demerits:

Deficit budget is not desired during periods of inflation. It is a period when the AD exceeds AS at full employment. Deficit budget in such situations (when AS cannot increase) would further increase the gap between AD and AS. Consequently, inflationary gap would rise and wage-price spiral (when wages increase with prices and prices increase with wages) may set in.

Power Points & Revision Window

Budget is a statement of expected receipts and expenditure of the government over the period of a financial year, April 1—March 31.

- **Objectives:** (i) GDP growth, (ii) Allocation of resources, (iii) Provision of public goods, (iv) Redistribution of income and wealth, (v) Balanced regional growth, (vi) Employment opportunities, (vii) Economic stability.
- **Structure of the Budget** includes (i) revenue budget showing revenue receipts and revenue expenditure of the government, and (ii) capital budget showing capital receipts and capital expenditure of the government. Looked at from a different angle, structure of the budget includes: (i) budget receipts (including revenue receipts and capital receipts), and (ii) budget expenditures (including revenue expenditure and capital expenditure).

Budget Receipts are the estimated money receipts of the government from all sources during a fiscal year.

- **Revenue Receipts** are those receipts: (i) which do not cause any reduction in assets [**Example:** Income from public sector enterprises], and (ii) which do not create any liability for the government [**Example:** Tax receipts of the government].
- **Capital Receipts** are those receipts: (i) which create liability for the government [**Example:** Funds received by the government as loans], and (ii) which cause reduction in assets of the government [**Example:** Disinvestment in public sector enterprises].

Budget Expenditure is the estimated expenditure of the government relating to its development and non-development programmes during a fiscal year.

- **Revenue Expenditure** is that expenditure by the government (i) which does not cause increase in government assets [**Example:** Expenditure on law & order], and (ii) which does not cause any reduction in government liability [**Example:** Expenditure on old-age pensions].
- **Capital Expenditure** is that expenditure by the government (i) which causes increase in government assets [**Example:** Expenditure on the construction of roads], and (ii) which causes reduction in government liability [**Example:** Payment of loan by the government].
- **Plan Expenditure** is related to specified plans and programmes of development, as well as assistance of the central government to the state governments. [**Example:** Expenditure on the construction of canals for irrigation.]
- **Non-plan Expenditure** is related to expenditure on routine functioning of the government. [**Example:** (i) Expenditure on law & order, and (ii) Expenditure on defence & subsidies.]

Balanced Budget: Total expenditure = Total receipts.

• **Surplus Budget:** Total expenditure < Total receipts.

• **Deficit Budget:** Total expenditure > Total receipts.

Budget Deficit is the excess of total expenditure over total receipts of the government.

• **Types:** (i) Revenue deficit, (ii) Fiscal deficit, (iii) Primary deficit.

Revenue Deficit: Revenue expenditure – Revenue receipts.

• **Implication:** Since revenue receipts and revenue expenditures are related largely to recurring expenses of the government (as on administration and maintenance), high revenue deficit gives a warning to the government either to cut its expenditure or increase its tax/non-tax receipts.

Fiscal Deficit: (Revenue expenditure + Capital expenditure) – (Revenue receipts + Capital receipts other than government borrowing).

• **Implications:** (i) Inflationary spiral, (ii) National debt, (iii) Vicious circle of high fiscal deficit and low GDP growth, (iv) Crowding-out, (v) Erosion of government credibility.

Primary Deficit: Fiscal deficit – Interest payment.

• **Implication:** Primary deficit indicates the extent to which the government needs to borrow to implement its budgetary programmes and policies for the year ahead.

Balanced Budget: It raises the level of AD in the economy, though moderately. It is recommended when the economy is close to achieving full employment.

• **Surplus Budget:** It is recommended when there is an inflationary gap and AD needs to be reduced.

• **Deficit Budget:** It is recommended when there is a state of depression and AD needs to be raised.

EXERCISE

1. Objective Type Questions (Remembering & Understanding based Questions)

A. Multiple Choice Questions

Choose the correct option:

1. In the context of government budget, which of the following statements is correct?
 - (a) It is a statement of expected annual receipts and expenditures of the government
 - (b) It is a detail of actual receipts and expenditures of the government in a financial year
 - (c) It offers a detailed description of achievements of the government during the five year plans
 - (d) It indicates BoP status of the domestic economy
2. Which of the following are the objectives of government budget?
 - (a) Distribution of income and wealth
 - (b) Economic stability
 - (c) GDP growth
 - (d) All of these
3. Which of the following is a non-tax receipt?
 - (a) Gift tax
 - (b) Sales tax
 - (c) Donations
 - (d) Excise duty

4. **Progressive tax is a tax which is:**
 - (a) charged at a decreasing rate when income of the individual increases
 - (b) charged at an increasing rate when income of the individual increases
 - (c) a fixed percentage of an individual income
 - (d) none of these
5. **Revenue earned by the government from the property without any legal heir is called:**
 - (a) donation
 - (b) escheat
 - (c) special assessment
 - (d) both (b) and (c)
6. **A tax, the burden of which can be shifted on to others, is called:**
 - (a) indirect tax
 - (b) direct tax
 - (c) wealth tax
 - (d) none of these
7. **Tax, the impact of which lies on the person on whom it is legally imposed, is known as:**
 - (a) indirect tax
 - (b) direct tax
 - (c) value added tax
 - (d) none of these
8. **Which one of the following is an indirect tax?**
 - (a) Wealth tax
 - (b) Excise duty
 - (c) Income tax
 - (d) None of these
9. **Which of the following is a direct tax?**
 - (a) Income tax
 - (b) Excise duty
 - (c) Sales tax
 - (d) Custom duty
10. **Tax that is imposed on value added at the various stages of production is known as:**
 - (a) corporate profit tax
 - (b) direct personal tax
 - (c) value added tax
 - (d) none of these
11. **Gift tax is a paper tax because:**
 - (a) it is an indirect tax
 - (b) it is a direct tax
 - (c) it does not have significant revenue yield
 - (d) both (b) and (c)
12. **Which of the following is not a non-tax receipt?**
 - (a) Fees
 - (b) Fines
 - (c) Gift tax
 - (d) Grants and donations
13. **Which of the following is a part of the revenue expenditure in the Indian Government budget?**
 - (a) Interest payments
 - (b) Defence purchases
 - (c) Wage bill of the government
 - (d) All of these
14. **Capital receipt is that receipt of the government which:**
 - (a) creates a liability
 - (b) reduces the assets
 - (c) both (a) and (b)
 - (d) neither (a) nor (b)
15. **Which of the following are capital receipts of the government?**
 - (a) Recovery of loans
 - (b) Borrowings
 - (c) Disinvestment
 - (d) All of these
16. **Capital expenditure is that estimated expenditure of the government by which:**
 - (a) assets are increased
 - (b) liability is decreased
 - (c) both (a) and (b)
 - (d) assets and liabilities do not change
17. **Deficit budget refers to that situation in which government's budget expenditure is:**
 - (a) less than its budget receipts
 - (b) more than its budget receipts
 - (c) equal to its budget receipts
 - (d) none of these

18. Fiscal Deficit =
- Total expenditure – Total receipts other than borrowing
 - Revenue expenditure – Revenue receipts
 - Capital expenditure – Capital receipts
 - Revenue expenditure + Capital expenditure – Revenue receipts
19. In which of the following ways, can deficit in budget be financed?
- Borrowing from RBI
 - Borrowing from the public
 - Both (a) and (b)
 - Neither (a) nor (b)
20. Which of the following is/are implication/s of fiscal deficit?
- Crowding-out
 - Inflationary spiral
 - Erosion of government credibility
 - All of these
21. A budget is a balanced one when:
- Total expenditure = Total receipts
 - Total expenditure < Total receipts
 - Total expenditure > Total receipts
 - none of these
22. Surplus budget is that budget wherein:
- Estimated revenue of the government < Estimated expenditure of the government
 - Estimated revenue of the government > Estimated expenditure of the government
 - Estimated revenue of the government = Estimated expenditure of the government
 - none of these
23. The difference between fiscal deficit and interest payment is called:
- revenue deficit
 - primary deficit
 - budget deficit
 - capital deficit
24. If primary deficit is ₹ 3,500 and interest payment is ₹ 500, then fiscal deficit is:
- ₹ 2,900
 - ₹ 4,000
 - ₹ 4,100
 - ₹ 4,200

Answers

1. (a) 2. (d) 3. (c) 4. (b) 5. (b) 6. (a) 7. (b) 8. (b) 9. (a) 10. (c)
 11. (c) 12. (c) 13. (d) 14. (c) 15. (d) 16. (c) 17. (b) 18. (a) 19. (c) 20. (d)
 21. (a) 22. (b) 23. (b) 24. (b)

B. Fill in the Blanks

Choose appropriate word and fill in the blank:

- The programmes and policies of the government as presented in the budget are known as _____ policy of the government. (fiscal/monetary)
- On the _____ side, the budgetary policy reveals expected receipts of the government. (revenue/expenditure)
- _____ receipts do not create any corresponding liability for the government. (Revenue/Capital)
- _____ is the excess of total expenditure over total receipts, other than borrowings. (Budget deficit/Fiscal deficit)
- A tax is said to be _____ when it causes a greater real burden on the poor than the rich. (progressive/regressive)

6. Fiscal discipline refers to the state of _____ between revenues and expenditures of the government. (balance/equilibrium)
7. Fiscal Deficit = _____ + Interest payment. (Revenue deficit/Primary deficit)
8. A _____ budget is that budget in which government receipts are equal to government expenditure. (balanced/unbalanced)
9. Recovery of loan is a _____ receipt. (revenue/capital)
10. _____ expenditure creates assets for the government. (Revenue/Capital)

Answers

- | | | | | |
|------------|--------------------|-------------|-------------------|---------------|
| 1. fiscal | 2. revenue | 3. Revenue | 4. Fiscal deficit | 5. regressive |
| 6. balance | 7. Primary deficit | 8. balanced | 9. capital | 10. Capital |

C. True or False

State whether the following statements are True or False:

1. Revenue budget focuses on GDP growth by way of public investment. (True/False)
2. Expenditure on old-age pensions is an example of revenue expenditure. (True/False)
3. A constant rate of taxation on the rich and the poor is a progressive tax. (True/False)
4. Greater fiscal deficit implies greater borrowings by the government. (True/False)
5. Revenue deficit leads to national debt. (True/False)
6. Balanced budget offers the solution to the problem of unemployment. (True/False)
7. Surplus budget is a budget in which government receipts are greater than government expenditures. (True/False)
8. Primary deficit reflects the need for borrowings by the government to manage its budgetary expenditure. (True/False)
9. Deficit budget is desired during periods of inflation. (True/False)
10. Capital receipts impact asset-liability status of the government. (True/False)

Answers

1. False 2. True 3. False 4. True 5. False 6. False 7. True 8. False 9. False 10. True

D. Matching the Correct Statements

I. From the set of statements given in Column I and Column II, choose the correct pair of statements:

Column I	Column II
(a) Progressive tax	(i) Rate of tax decreases with an increase in income
(b) Revenue expenditure	(ii) Impacts asset-liability status of the government
(c) Wealth tax	(iii) An indirect tax
(d) Revenue deficit	(iv) Revenue expenditure – Revenue receipts
(e) Defence of the country	(v) Private goods

Answer

- (d) Revenue deficit—(iv) Revenue expenditure – Revenue receipts

II. Identify the correct sequence of alternatives given in Column II by matching them with respective items in Column I:

Column I	Column II
(a) Disinvestment	(i) Government expenditures > Government receipts
(b) Capital expenditure	(ii) Value of output – Value of intermediate consumption
(c) Value added	(iii) Capital receipts
(d) Deficit budget	(iv) Loans granted to state governments
(e) Borrowings	(v) Withdrawal of existing investment

Answers

(a)—(v), (b)—(iv), (c)—(ii), (d)—(i), (e)—(iii)

E. 'Very Short Answer' Objective Type Questions

1. What is government budget?
 Ans. Government budget is a statement of estimated receipts and expenditure of the government during a financial year.
2. What is meant by fiscal year in India?
 Ans. In India, fiscal year is the year which begins on April 1 and ends on March 31 of the following year.
3. Define revenue budget.
 Ans. Revenue budget is the statement of estimated revenue receipts and estimated revenue expenditure during a fiscal year.
4. Define revenue receipts.
 Ans. Revenue receipts are those receipts which neither create any liability nor lead to any reduction in assets.
5. Define revenue expenditure.
 Ans. Revenue expenditure is that expenditure of the government which neither creates assets for the government nor causes a reduction in liabilities of the government.
6. Define tax.
 Ans. A tax is compulsory payment made by an individual, household or a firm to the government without reference to anything in return.
7. What is a direct tax?
 Ans. A direct tax is that tax the final burden of which falls on that very person who is liable to pay it to the government.
8. What is an indirect tax?
 Ans. Indirect tax is a tax on goods and services. Those who are liable to pay this tax need not bear the final burden of this tax.
9. What is a progressive tax?
 Ans. Progressive tax is a tax that causes relatively less real burden on the poor and more on the rich.
10. Define regressive tax.
 Ans. Regressive tax is a tax that causes relatively more real burden on the poor and less on the rich.
11. What is value added tax?
 Ans. Value added tax is an indirect tax which is imposed on 'value added' at the various stages of production. GST is an important form of value added tax.
12. Define capital budget.
 Ans. Capital budget is the statement of estimated capital receipts and estimated capital expenditure during a fiscal year.

13. Define capital receipts.

Ans. Capital receipts are those receipts which either create a liability or lead to reduction in assets.

14. Define capital expenditure.

Ans. Capital expenditure is an expenditure which leads to creation of assets or reduction in liabilities.

15. Give two examples of capital receipts.

Ans. (i) Recovery of loans, and (ii) Borrowings.

16. Give two examples of capital expenditure.

Ans. (i) Expenditure on the purchase of land by the government.
(ii) Loans granted by the central government to state governments.

17. Define plan expenditure.

Ans. Plan expenditure is the expenditure which is related to some specified plan for the year.

18. Define non-plan expenditure.

Ans. Non-plan expenditure is the expenditure which is not related to any specified plan for the year.

19. Why is payment of interest a revenue expenditure?

Ans. Payment of interest is treated as a revenue expenditure, because it neither reduces liability of the payer nor adds to his assets.

20. Why are subsidies treated as revenue expenditure?

Ans. Subsidies are treated as revenue expenditure by the government, because this expenditure:
(i) does not reduce liability of the government, nor
(ii) adds to assets of the government.

21. Why is recovery of loans treated as a capital receipt?

Ans. Recovery of loans is a capital receipt because it leads to reduction in assets.

22. How is disinvestment by the government a capital receipt?

Ans. Disinvestment by the government is a capital receipt, as it leads to a reduction in assets.

23. Define balanced budget.

Ans. Balanced budget is that budget in which government receipts are equal to government expenditure.

24. Define surplus budget.

Ans. Surplus budget is that budget in which government receipts are more than government expenditure.

25. What is budgetary deficit?

Ans. Budgetary deficit is the excess of total expenditure over total receipts of the government.

26. What is meant by revenue deficit?

Ans. Revenue deficit is equal to the excess of total revenue expenditure over the total revenue receipts.
$$\text{Revenue deficit} = \text{Revenue expenditure} - \text{Revenue receipts}$$

27. Define fiscal deficit.

Ans. Fiscal deficit is equal to the excess of total expenditure over the sum of revenue receipts and capital receipts excluding borrowing.

$$\text{Fiscal deficit} = (\text{Revenue expenditure} + \text{Capital expenditure}) - (\text{Revenue receipts} + \text{Capital receipts other than borrowing})$$

28. What is the significance of measuring fiscal deficit?

Ans. The significance of measuring fiscal deficit is that it reflects total borrowings of the government during the financial year. Accumulated borrowings over the year reflect accumulated burden of national debt which is to be borne by the future generations.

29. Define primary deficit.

Ans. Primary deficit is the difference between fiscal deficit and interest payment.
$$\text{Primary deficit} = \text{Fiscal deficit} - \text{Interest payment}$$

30. What is the significance of primary deficit?

Ans. The significance of primary deficit is that it reflects borrowings on account of current year expenditure exceeding the current year receipts of the government. Interest payment on the accumulated borrowings is not accounted for.

2. Reason-based Questions (Comprehension of the Subject-matter)

Read the following statements carefully. Write True or False with a reason.

1. **Borrowing from the central bank by the government leads to inflation as it increases the supply of money in the economy.**
Ans. True. Because increase in the supply of money has a direct bearing on the general price level particularly in less developed countries where production capacity is highly limited.
2. **Balanced budget is that budget in which revenue receipts = revenue expenditure.**
Ans. False. Balanced budget is that budget in which total expenditure = total receipts.
3. **Revenue receipts tend to reduce liability of the government.**
Ans. False. Revenue receipts do not affect asset/liability status of the government.
4. **Capital expenditure adds to assets of the government, or reduces its liability.**
Ans. True. Capital expenditure of the government creates assets for the government (through expenditure on capital goods projects) or reduces its liability (through repayment of loans).
5. **Revenue receipts do not impact asset and liability status of the government.**
Ans. True. Revenue receipts are those receipts which do not cause reduction in assets or increase in liability of the government.
6. **Revenue expenditure reduces assets of the government.**
Ans. False. Revenue expenditure is that expenditure of the government which does not cause increase in assets or a reduction in liabilities.
7. **Capital receipts add to liabilities of the government.**
Ans. True. Capital receipts are those receipts which cause a reduction in assets or increase in liability of the government.
8. **Capital expenditure reduces capital stock of the government.**
Ans. False. If incurred on the creation of assets (like construction of government buildings), capital expenditure increases capital stock of the government.
9. **Tax is a capital receipt of the government.**
Ans. False. Tax is a revenue receipt of the government. It does not impact asset/liability status of the government.
10. **Repayment of loan by the government is a capital expenditure.**
Ans. True. Because repayment of loan causes reduction in liabilities of the government. Therefore, it is a capital expenditure.
11. **GST is a direct tax.**
Ans. False. GST is an indirect tax because it is levied on goods and services, and its burden can be shifted from sellers to the buyers.
12. **A regressive tax causes a greater real burden on the rich.**
Ans. False. A regressive tax, by definition, causes a greater real burden on the poor.
13. **Borrowing by the government is a measure of revenue deficit.**
Ans. False. Borrowing by the government is not a measure of revenue deficit. It is a measure of fiscal deficit.
14. **Loans offered by the central government to the state government are to be treated as capital expenditure of the central government.**
Ans. True. Because loans offered by the central government to the state government create assets for the central government.

15. **Grants by the government are treated as revenue expenditure.**
 Ans. True. All grants, as a matter of convention, are treated as revenue expenditure of the government.
16. **Construction of fly-over is a revenue expenditure of the government.**
 Ans. False. Construction of fly-over is a capital expenditure of the government because it adds to assets of the government.
17. **Expenditure on law and order is a component of plan expenditure.**
 Ans. False. Expenditure on law and order is a component of non-plan expenditure because it relates to expenditure on routine functioning of the government.
18. **Borrowing by the government is a component of revenue budget.**
 Ans. False. Borrowing by the government is a component of capital budget. Because, it increases liability of the government.
19. **Disinvestment is a component of capital budget.**
 Ans. True. Disinvestment causes reduction in assets of the government. Therefore, it is a capital receipt of the government.
20. **Fiscal deficit is only a part of primary deficit.**
 Ans. False. Primary deficit is only a part of fiscal deficit. $\text{Fiscal deficit} = \text{Primary deficit} + \text{Interest payment}$.
21. **Higher revenue deficit always leads to higher fiscal deficit.**
 Ans. False. Because fiscal deficit also depends on capital receipts and expenditures of the government.
22. **Fiscal deficit is zero in case there is no provision for borrowing in the government budget.**
 Ans. True. Because fiscal deficit is equal to total borrowing by the government.
23. **Revenue deficit is the excess of capital receipts over and above revenue receipts of the government.**
 Ans. False. Revenue deficit is the excess of revenue expenditure over revenue receipts.
24. **Primary deficit does not include interest payment, while fiscal deficit does.**
 Ans. True. Primary deficit is the difference between fiscal deficit and interest payment.

3. HOTS & Applications

1. **Revenue deficit can be managed through borrowing or disinvestment. But fiscal deficit can be managed only through borrowing. Do you agree? State reason in support of your answer.**
 Ans. The statement is true. Because disinvestment is already included as an item of capital receipt in the estimation of fiscal deficit. So that, borrowing is the only window available to manage fiscal deficit. On the other hand, estimation of revenue deficit does not account for borrowing as well as disinvestment. So that, both these windows are available to manage revenue deficit.
2. **A persistent recession leads to low revenue receipts of the government. Comment.**
 Ans. Economic recession is a situation when low AD leads to low investment and therefore, low growth rate of GDP. When growth rate of GDP falls, tax revenue of the government (through direct as well as indirect taxation) tends to suffer. Implying slowdown of revenue receipts of the government during recession.
3. **A rise in fiscal deficit when the government revises salary structure of its employees leads to a rise in primary deficit as well. Comment.**
 Ans. Revision of salary structure enhances revenue expenditure of the government. It would mean a rise in fiscal deficit of the government. If interest payments are constant, a rise in fiscal deficit would amount to a rise in primary deficit as well ($\text{Fiscal deficit} - \text{Interest payment} = \text{Primary deficit}$).
4. **Is it correct that if revenue budget balances, capital budget also balances.**
 Ans. No, the given statement is incorrect. Because revenue budget shows revenue receipts and revenue expenditure while capital budget shows capital receipts and capital expenditure.

5. Is government budget a statement of government receipts and expenditure over the past one year?
 Ans. No, government budget is a statement of estimated receipts and expenditure of the government for the fiscal year which is to begin.
6. Budgetary deficit points to failure of the government to manage its budget. Defend or refute.
 Ans. The above statement is incorrect. Budgetary deficit reflecting borrowing by the government may in fact be a part of designed strategy of the government to accelerate the pace of growth or to achieve macro stability in the economy.
7. Do you agree that revenue deficit increases when the government fails to recover its loans?
 Ans. No, it is incorrect. Revenue deficit is the excess of revenue expenditure over revenue receipts. While the recovery of loans by the government is a capital receipt.
8. Is balanced budget always the best budget?
 Ans. Not necessarily. A moderate fiscal deficit (around 3%) is found to be conducive to growth, when investment is low because of low AD.
9. Is income tax in India regressive in nature?
 Ans. No, income tax in India is progressive in nature. Because tax rate increases with increase in income.
10. Does non-plan expenditure contribute to social welfare?
 Ans. Yes, non-plan expenditure does contribute to social welfare. Most of the non-plan expenditure consists of expenditure on subsidies and the maintenance of law and order in the country. Both these categories of expenditure are welfare-oriented.
11. Briefly describe how the government budget contributes to the process of growth and stability.
 Ans. The government budget contributes to growth, because a significant percentage of budgetary expenditure is committed to the growth and expansion of public sector enterprises. The government also offers subsidies to the producers to maintain high level of production of the essential goods. Stability is promoted by combating inflation through fiscal discipline and combating deflation through liberal spending by the government. Fiscal discipline aims at lowering AD during inflation. Liberal spending promotes AD during deflation.
12. Distinguish between revenue budget and capital budget.
 Ans. That part of the government budget which shows revenue account (including revenue receipts and revenue expenditure) is known as revenue budget. That part of the government budget which shows capital account (including capital receipts and capital expenditure) is known as capital budget.
13. Government has raised its expenditure on free services like education and health to the poor. Explain the economic value it reflects.
 Ans. Two observations can be made in this respect:
- Higher expenditure on health is expected to make our workforce strong and efficient. Rise in efficiency implies a rise in productivity which leads to a rise in GDP. It is an index of economic growth.
 - Higher expenditure on education is expected to boost skill formation in the country. It facilitates the use of new technology. Application of new technology would shift PPC of the economy to the right. Implying a higher level of output with the same resources.
14. Find Primary Deficit from the following data:
- | Items | (₹ in crore) |
|--|--------------|
| (i) Revenue deficit | 8,800 |
| (ii) Fiscal deficit | 11,600 |
| (iii) Interest payment by the government | 1,600 |
- Ans. Primary Deficit = Fiscal deficit – Interest payment by the government
 = ₹ 11,600 crore – ₹ 1,600 crore
 = ₹ 10,000 crore
- Primary deficit = ₹ 10,000 crore.

15. Calculate Revenue Deficit, Fiscal Deficit and Primary Deficit from the following data:

Items	(₹ in crore)
(i) Revenue expenditure	22,250
(ii) Capital expenditure	28,000
(iii) Revenue receipts	17,750
(iv) Capital receipts (net of borrowing)	20,000
(v) Interest payments	5,000
(vi) Borrowings	12,500

Ans. Revenue Deficit = Revenue expenditure – Revenue receipts
 = ₹ 22,250 crore – ₹ 17,750 crore
 = ₹ 4,500 crore

Fiscal Deficit = Revenue expenditure + Capital expenditure – Revenue receipts – Capital receipts (net of borrowing)
 = Borrowings
 = ₹ 12,500 crore

Primary Deficit = Fiscal deficit – Interest payments
 = ₹ 12,500 crore – ₹ 5,000 crore
 = ₹ 7,500 crore

Revenue deficit = ₹ 4,500 crore.

Fiscal deficit = ₹ 12,500 crore.

Primary deficit = ₹ 7,500 crore.

16. Find borrowing by the government if payment of interest is estimated to be of ₹ 15,000 crore which is 25% of primary deficit.

Ans. Here, interest payment = 25% of primary deficit. So that,

$$\text{Primary deficit} = \frac{100}{25} \times 15,000 = ₹ 60,000 \text{ crore}$$

We know,

$$\text{Primary Deficit} = \text{Fiscal deficit} - \text{Interest payment}$$

Or,

$$\begin{aligned} \text{Fiscal Deficit} &= \text{Primary deficit} + \text{Interest payment} \\ &= ₹ 60,000 \text{ crore} + ₹ 15,000 \text{ crore} \\ &= ₹ 75,000 \text{ crore} \end{aligned}$$

$$\text{Borrowing} = \text{Fiscal Deficit} = ₹ 75,000 \text{ crore}$$

Borrowing by the government = ₹ 75,000 crore.

17. Revenue deficit is estimated to be ₹ 20,000 crore, and borrowing is estimated to be ₹ 15,000 crore. If expenditure on interest payment is estimated to be 50% of the revenue deficit, find fiscal deficit and primary deficit.

Ans. Fiscal Deficit = Borrowing = ₹ 15,000 crore

$$\begin{aligned} \text{Interest Payment} &= 50\% \text{ of Revenue deficit} \\ &= 50\% \text{ of ₹ 20,000 crore} \\ &= ₹ 10,000 \text{ crore} \end{aligned}$$

$$\begin{aligned} \text{Primary Deficit} &= \text{Fiscal deficit} - \text{Interest payment} \\ &= ₹ 15,000 \text{ crore} - ₹ 10,000 \text{ crore} \\ &= ₹ 5,000 \text{ crore} \end{aligned}$$

Fiscal deficit = ₹ 15,000 crore.

Primary deficit = ₹ 5,000 crore.

18. Comment on the following statements as true or false, with a reason.
- Construction of school-building is a revenue expenditure of the government.
 - Gift tax is a capital receipt.
 - Dividends on investment made by government is a revenue receipt.
- Ans.
- It is a false statement. Construction of school-building is a capital expenditure because it creates an asset for the government.
 - It is a false statement. Gift tax is a revenue receipt, because it neither creates liability nor leads to reduction in assets of the government.
 - It is a true statement. Dividends on investment made by government is a revenue receipt, as it does not add to liability or reduction in assets of the government.
19. Categorise the following government receipts into revenue and capital receipts. Give reasons for your answer.
- Receipt from sale of shares of a public sector undertaking.
 - Borrowing from public.
 - Profit of public sector undertakings.
 - Income tax received by government.
- Ans.
- Receipt from sale of shares of a public sector undertaking is a capital receipt, as it causes reduction in assets of the government.
 - Borrowing from public is a capital receipt, as it creates liability for the government.
 - Profit of public sector undertakings is a revenue receipt, because it neither creates liability nor leads to reduction in assets of the government.
 - Income tax received by government is a revenue receipt, because it neither creates liability nor leads to reduction in assets of the government.
20. Why should revenue deficit be curbed?
- Ans. Revenue deficit often occurs when unproductive expenditure of the government (like expenditure on subsidies and purchases relating to law & order and defence of the country) is in excess of the tax and non-tax revenue receipts. Thus, it contributes to fiscal deficit without adding much to the flow of goods and services in the economy. Revenue deficit compels the government to resort to borrowing or disinvestment. Borrowing leads to a rise in national debt. Disinvestment leads to transfer of asset ownership from the public sector to private sector. It implies a shift in focus from social welfare to profit maximisation. Thus, we conclude that revenue deficit should be curbed.
21. *Finance Minister has announced that steps would be taken to rationalise subsidies which presently dominate the economy of the nation.*
What is the economic value of this statement?
- Ans. The statement comes in the wake of consistently high fiscal deficit arising out of high expenditure of the government on subsidies. Expenditure on subsidies is mostly unproductive. Because, it just focuses on lowering the market price of certain goods (like oil and LPG). To the extent money is spent on subsidies, it is not available for investment in strategic sectors of economy like infrastructure. Rationalising the subsidies means provision of subsidies only for below poverty line population. The government has already initiated this process by withdrawing subsidy on petrol and diesel.
22. How has the decline in the price of crude oil in the international market helped the government to reduce fiscal deficit?
- Ans. India imports crude oil to meet the bulk of domestic demand for petrol and diesel. A substantial fall in crude oil prices in the international market has prompted the government to increase excise duty on petrol and diesel without passing the benefit of it to the consumers. It has raised tax revenue of the government. Accordingly, fiscal deficit has reduced.

4. Analysis & Evaluation

1. How can the government impact allocation of resources through its budgetary policy?

Ans. Following observations highlight how the government can impact allocation of resources through its budgetary policy:

- (i) The government can offer subsidies on such goods (like coarse cloth) the production of which is essential for poorer sections of the society. So that, the resources are shifted from the production of 'goods for the rich' to the production of 'goods for the poor'.
- (ii) The government can grant 'tax holiday' (exemption from tax payments) to induce investment in the production of essential goods like 'life saving drugs'. So that the resources are shifted from the production of non-essential drugs to the life-saving drugs.
- (iii) The government can impact allocation of resources by shifting its own investments from inefficient to efficient units of production. Also, allocation of resources would be impacted when the government increases investment on the production of public goods.
- (iv) High taxation can be imposed on such goods (like cigarettes and liquor), the production of which is harmful to the society. Accordingly, the resources would shift to the production of socially useful production activities.
- (v) The government can make larger budgetary allocations for its 'Support Price Policy' in favour of food crops. This would shift resources from non-food crops to food crops. This would make the country self-sufficient in food grain production.

2. Do you approve of disinvestment as an appropriate policy of financing budgetary deficit?

Ans. Disinvestment occurs when the government chooses to sell its stake in public sector or joint sector enterprises. This leads to 'privatisation'. Presently, this seems to be the only effective remedy available with the government to finance the deficit. However, the government should be careful about two points:

- (i) It should unload shares of only inefficient enterprises. Otherwise, it would not only be lowering its asset holding, but also closing a regular source of income, and
- (ii) Money received through disinvestment should not be used for purpose of political popularity (to garner votes). Instead, it should be used as productive investment.

3. Subsidy on diesel oil is a wasteful expenditure by the government. Write one point in support of this observation and one against it.

Ans. It is a wasteful expenditure:

Because the benefit of subsidy (on diesel oil) is unduly reaped by a richer section of the society who get cheaper oil to run their luxury cars.

It is not a wasteful expenditure:

Because, farmers need to be given diesel at the low price. So that, the cost of farming does not rise and farming remains a profitable occupation.

4. Do you agree with the view that demonetisation of 500 and 1,000 rupee notes would help the government in lowering its fiscal deficit?

Ans. It is true that demonetisation would help the government to lower its fiscal deficit. Because of demonetisation, shadow economy (black money economy) will shrink. Unaccounted output would now be accounted as a part of GDP. This would increase revenue receipts of the government by way of direct and indirect taxation. Accordingly, fiscal deficit must reduce.

5. CBSE Questions—Past 5 years

(With Answers or Reference to the Text for Answers)

1. Borrowing in government budget is: (choose the correct alternative)

[CBSE Delhi 2015]

- | | |
|---------------------|----------------------|
| (a) revenue deficit | (b) fiscal deficit |
| (c) primary deficit | (d) deficit in taxes |

[(b)]

2. The non-tax revenue in the following is: (choose the correct alternative) [CBSE Delhi 2015]
 (a) export duty (b) import duty
 (c) dividends (d) excise
 [(c)]
3. Explain the role the government can play through the budget in influencing allocation of resources. [Page 292] [CBSE Delhi 2015]
4. Primary deficit in a government budget is: (choose the correct alternative) [CBSE (AI) 2015]
 (a) Revenue expenditure – Revenue receipts
 (b) Total expenditure – Total receipts
 (c) Revenue deficit – Interest payments
 (d) Fiscal deficit – Interest payments
 [(d)]
5. Direct tax is called direct because it is collected directly from: (choose the correct alternative) [CBSE (AI) 2015]
 (a) the producers on goods produced (b) the sellers on goods sold
 (c) the buyers of goods (d) the income earners
 [(d)]
6. Explain how the government can use the budgetary policy in reducing inequalities in incomes. [CBSE (AI) 2015]
 Or [CBSE (AI) 2015]
 Explain how the government can use the budgetary policy in reducing inequality of income in the economy. [CBSE 2019 (58/4/1)]
 [Page 293]
7. Primary deficit in a government budget equals: (choose the correct alternative) [CBSE (F) 2015]
 (a) interest payments (b) interest payments less borrowings
 (c) borrowings less interest payments (d) none of the above
 [(c)]
8. Which one of these is a revenue expenditure? [CBSE (F) 2015]
 (a) Purchase of shares (b) Loans advanced
 (c) Subsidies (d) Expenditure on acquisition of land
 [(c)]
9. Explain the role of government budget in fighting inflationary and deflationary tendencies. [Page 293] [CBSE (F) 2015]
10. Fiscal deficit equals: (choose the correct alternative) [CBSE Delhi 2016]
 (a) interest payments (b) borrowings
 (c) interest payments less borrowing (d) borrowings less interest payments
 [(b)]
11. What is revenue expenditure? [CBSE Delhi 2016]
 [Page 300]
12. What are revenue receipts in a government budget? [CBSE Delhi 2016; (AI) 2016]
 [Page 294, 295]
13. What is revenue deficit in government budget? [CBSE Delhi 2016]
 Or [CBSE Delhi 2017]
 What is revenue deficit?

- Or
- Define revenue deficit. [CBSE (AI) 2017]
[Page 304]
14. What is government budget? Explain how taxes and subsidies can be used to influence allocation of resources. [CBSE Delhi 2016]
- Or
- What is government budget? Explain the role of government budget in influencing allocation of resources in the economy. [CBSE (F) 2016]
[Page 292]
15. Define revenue receipts in a government budget. Explain how government budget can be used to achieve price stability in the economy. [CBSE Delhi 2016]
- Or
- What are revenue receipts? Explain the role of government budget in bringing stability in the economy. [CBSE (F) 2016]
[Page 293–295]
16. Primary deficit equals: (choose the correct alternative) [CBSE (AI) 2016]
(a) borrowings (b) interest payments
(c) borrowings less interest payments (d) borrowings and interest payments both
[(c)]
17. What are capital receipts in a government budget? [CBSE (AI) 2016]
- Or
- What are capital receipts? [CBSE (F) 2017]
[Page 298, 299]
18. Define fiscal deficit. [CBSE (AI) 2016]
- Or
- What is fiscal deficit? [CBSE Delhi 2017]
- Or
- What is meant by fiscal deficit? [CBSE 2019 (58/1/1)]
[Page 305]
19. What is the difference between revenue expenditure and capital expenditure? Explain how taxes and government expenditure can be used to influence distribution of income in the society. [CBSE (AI) 2016]
[Page 293, 303]
20. What is the difference between direct tax and indirect tax? Explain the role of government budget in influencing allocation of resources. [CBSE (AI) 2016]
[Page 292, 297]
21. Disinvestment by government means: (choose the correct alternatives) [CBSE (F) 2016]
(a) selling of its fixed capital assets (b) selling of shares of public enterprises held by it
(c) selling of its buildings (d) all the above
[(b)]
22. What is capital expenditure? [CBSE (F) 2016]
[Page 301]
23. What is primary deficit? [CBSE Delhi 2017; (F) 2016]
- Or
- What is meant by primary deficit? [CBSE 2019 (58/1/1)]
[Page 306]

24. Explain the basis of classifying taxes into direct and indirect tax. Give examples. [CBSE Delhi 2017]
[Page 296, 297]
25. Explain how government budget can be used to influence distribution of income. [CBSE Delhi 2017]
[Page 293]
26. Define government budget. [CBSE (AI) 2017]
[Page 292]
27. Distinguish between direct taxes and indirect taxes. Give an example of each. [CBSE (AI) 2017]
[Page 297]
28. Explain how government budget can be helpful in bringing economic stabilisation in the economy.
[Page 293] [CBSE (AI) 2017]
29. Giving reasons, classify the following into revenue receipts and capital receipts:
(i) Recovery of loans.
(ii) Profits of public sector undertakings.
(iii) Borrowings. [CBSE (F) 2017]
[Page 462]
30. Explain how can government budget be useful in influencing allocation of resources in an economy.
[Page 292] [CBSE (F) 2017]
31. What is government budget? Explain its major components. [CBSE 2018]
[Page 292, 294–302]
32. Explain (a) allocation of resources, and (b) economic stability as objectives of government budget.
[Page 292, 293] [CBSE 2018]
33. Define the term 'tax'. [CBSE 2019 (58/1/1)]
[Page 295]
34. How are capital receipts different from revenue receipts? Discuss briefly. [CBSE 2019 (58/1/1)]
[Page 300]
35. How are capital expenditure different from revenue expenditure? Discuss briefly.
[Page 303] [CBSE 2019 (58/1/2)]
36. (a) How are tax receipts different from non-tax receipts? Discuss briefly.
(b) State any two items of revenue expenditure in a government budget. [CBSE 2019 (58/1/3)]
[Page 295, 297, 300, 301]
37. Primary deficit in a government budget will be zero, when _____. (Choose the correct alternative) [CBSE 2019 (58/2/1)]
(a) revenue deficit is zero (b) net interest payments are zero
(c) fiscal deficit is zero (d) fiscal deficit is equal to interest payment
[(d)]
38. What do you mean by a direct tax? [CBSE 2019 (58/2/1)]
[Page 296, 297]
39. What do you mean by an indirect tax? [CBSE 2019 (58/2/1)]
[Page 297]
40. Classify the following statements as revenue receipts or capital receipts. Give valid reasons in support of your answer.
(i) Financial help from a multinational corporation for victims in a flood affected area.
(ii) Sale of shares of a Public Sector Undertaking (PSU) to a private company, Y Ltd.

(iii) Dividends paid to the Government by the State Bank of India.

(iv) Borrowings from International Monetary Fund (IMF).

[CBSE 2019 (58/2/1)]

[Page 463]

41. (a) Distinguish between revenue receipts and capital receipts of the government.

(b) Do 'disinvestment' and 'loan proceeds from abroad' constitute revenue receipts of the government? Give reason.

[CBSE 2019 (58/3/1)]

[Page 294, 295, 299, 300]

42. Given the following data estimate the values of (a) Revenue Deficit, and (b) Fiscal Deficit:

Items	(₹ in crore)
(i) Tax revenue	1,000
(ii) Non-tax revenue	150
(iii) Net borrowings by government	780
(iv) Disinvestment proceeds	50
(v) Revenue expenditure	1,500
(vi) Capital expenditure	480

[Page 463]

[CBSE 2019 (58/3/1)]

43. Dividends received from Public Sector Undertakings (PSUs) are a part of the government's . (Choose the correct alternative)

[CBSE 2019 (58/4/1)]

(a) non-tax revenue receipts

(b) tax receipts

(c) capital receipts

(d) capital expenditure

[(a)]

44. State any two examples of non-tax revenue receipts of the government.

[CBSE 2019 (58/4/1)]

Or

State any two examples of non-tax revenue.

[CBSE 2019 (58/5/1)]

[Page 297, 298]

45. Suppose you are a member of the "Advisory Committee to the Finance Minister of India". The Finance Minister is concerned about the rising Revenue Deficit in the budget.

Suggest any one measure to control the rising Revenue Deficit of the government.

[Page 305]

[CBSE 2019 (58/4/1)]

46. Discuss briefly the role of the government budget in influencing "allocation of resources" in the economy.

[CBSE 2019 (58/4/1)]

[Page 292]

47. Which of the following is a capital receipt in the government budget?

[CBSE 2019 (58/5/1)]

(a) Income tax

(b) Interest receipt

(c) Sale of shares of a Public Sector Undertaking (PSU) to X Limited (Private Company)

(d) Dividends from a Public Sector Undertaking (PSU)

[(c)]

48. If in an economy, the estimated receipts of the government during a year are lesser than the estimated expenditure, the budget would be called _____ budget.

(Fill up the blank)

[CBSE 2019 (58/5/1)]

[deficit]

49. State whether the following statements are true or false. Support your answer with reason.
- Taxation is an effective tool to reduce the inequalities of income.
 - Revenue deficit increases when government fails to recover loans forwarded to different nations. [CBSE 2019 (58/5/1)]
- [(a) True. To correct inequality of income, the government pursues the policy of progressive taxation. Progressive taxation in India focuses on the equitable distribution of disposable income. Higher rate of taxation on higher incomes and lower rate of taxation on lower incomes reduces the gulf between disposable income of the rich and the poor.
- (b) False. Recovery of loans is a capital receipt because it leads to reduction in assets. It does not affect the revenue receipts.]

6. NCERT Questions (With Hints to Answers)

- Distinguish between revenue expenditure and capital expenditure.
 [Hint: Revenue expenditure is that expenditure of the government which does not either create assets for the government or causes a reduction in liabilities of the government. Example: Expenditure on interest payments. Capital expenditure is that expenditure of the government which either creates assets for the government or causes a reduction in government liability. Example: Expenditure on purchase of shares.]
- “The fiscal deficit gives the borrowing requirement of the government.” Elucidate.
 [Hint: Fiscal deficit refers to excess of government expenditure over its receipts, exclusive of borrowings. Thus, fiscal deficit points to borrowing requirement of the government to cope with its expenditures of the year. Higher borrowing implies higher burden of repayment of loans and of interest on the future generations. As this burden mounts up, year after year, resource-base of the future generations tends to shrink. This will definitely retard the process of future growth, particularly when borrowings by the government are used for non-productive purposes.]
- Give the relationship between the revenue deficit and the fiscal deficit.
 [Hint: When current account expenditure is allowed to mount up (without a proportionate rise in current account receipts), revenue deficit tends to rise. The rising revenue deficit is reflected as a fiscal deficit (unless the government resorts to disinvestment). And when fiscal deficit is high, owing to high revenue deficit (implying high consumption expenditure) NOT owing to high investment expenditure, GDP growth receives a set-back. A set-back in GDP growth raises unemployment. Slow GDP growth and high unemployment lead to: (i) a cut in government revenue receipts, and (ii) a rise in government welfare expenditure. Implying a rise in revenue deficit. Thus, there is a vicious circle where revenue deficit and fiscal deficit start feeding each other and the economy is driven to a state of stagnation.]

7. Miscellaneous Questions and Reference to the Text for Answers

A. Questions of 3 & 4 marks each

- What is government budget? State its main objectives. [Page 292, 293]
- Give meaning of revenue receipts and capital receipts with an example of each. [Page 294–299]
- Distinguish between revenue receipt and capital receipt and give two examples of each. [Page 294–300]
- State the basis of classifying government receipts into revenue receipts and capital receipts. Give an example of each. [Page 294–299]
- Distinguish between tax revenue receipts and non-tax revenue receipts. [Page 295–298]

6. Give meaning of revenue expenditure and capital expenditure in a government budget with an example of each. [Page 300, 301]
7. Distinguish between revenue expenditure and capital expenditure. Give two examples of each. [Page 300, 301, 303]
8. State the basis of classifying government expenditure into revenue expenditure and capital expenditure. Give an example of each. [Page 300, 301]
9. Define a tax. Give two examples each of direct taxes and indirect taxes. [Page 295–297]
10. What are plan and non-plan expenditures in a government budget? Give an example of each. [Page 301, 302]
11. What is the difference between plan and non-plan expenditure? [Page 301, 302]
12. Distinguish between balanced budget and surplus budget. [Page 304, 309, 310]
13. What is revenue deficit? What are its implications?

Or

- Explain the meaning and implications of revenue deficit in a government budget. [Page 304, 305]
14. What is fiscal deficit? What are its implications? [Page 305, 306]
 15. Distinguish between fiscal deficit and revenue deficit. What does fiscal deficit indicate? [Page 304, 305, 307]

Add-on Questions with Hints

16. Giving reason, categories the following into revenue receipts and capital receipts:
 - (i) Recovery of loans.
[Capital receipts, because it reduces assets of the government.]
 - (ii) Corporation tax.
[Revenue receipts, because it neither creates liability nor reduces assets of the government.]
 - (iii) Dividends on investments made by government.
[Revenue receipts, because it neither creates liability nor reduces assets of the government.]
 - (iv) Sale of a public sector undertaking.
[Capital receipts, because it reduces assets of the government.]
17. Giving reason, categories the following into revenue expenditure and capital expenditure:
 - (i) Subsidies.
[Revenue expenditure, because it neither reduces liability nor creates assets of the government.]
 - (ii) Grants given to state governments.
[Revenue expenditure, because it neither reduces liability nor creates assets of the government.]
 - (iii) Repayment of loans.
[Capital expenditure, because it reduces liability of the government.]
 - (iv) Construction of school buildings.
[Capital expenditure, because it adds to the assets of the government.]
18. Which one of the following is capital expenditure of the government?
 - (i) Payment of interest.
 - (ii) Purchase of a building.
 - (iii) Purchase of machinery.
 - (iv) Loans granted to a state government.
[Purchase of a building; Purchase of machinery; Loans granted to a state government.]

B. Questions of 6 marks each

1. Define government budget. What are the objectives of a budget? [Page 292, 293]
2. Bring out the difference between revenue budget and capital budget. Give the items of revenue as well as capital receipts and expenditure of the government. [Page 294–303]
3. Distinguish between balanced budget and unbalanced budget. Is balanced budget an achievement of the government? [Page 309–311]
4. Distinguish between progressive and regressive taxation in terms of their effect on the rich and the poor. [Page 296, 332]
5. Is proportionate taxation a progressive tax or a regressive tax? Give an illustration in support of your answer. [Page 296, 332]
6. In an economy where additional tax revenue of the government is equal to additional expenditure by the government, would there be any impact on national income? Explain with an illustration.
[Hint: Additional expenditure by the government (say of ₹ 6 crore) would cause a multiplier effect in the economy, similar to the investment multiplier. Assuming multiplier to be 2, additional income generated in the economy would be $(2 \times ₹ 6 \text{ crore}) = ₹ 12 \text{ crore}$.
Additional tax revenue by the government of ₹ 6 crore does not cause reduction in expenditure by ₹ 6 crore. Expenditure is reduced by $0.5 \times (-₹ 6 \text{ crore}) = -₹ 3 \text{ crore}$ (on the assumption that $MPC = 0.5$). Accordingly, multiplier being 2, the inverse multiplier effect would be to the tune of $2 \times (-₹ 3 \text{ crore}) = -₹ 6 \text{ crore}$.
The net effect would be an increase in income by ₹ 6 crore ($= ₹ 12 \text{ crore} - ₹ 6 \text{ crore}$).]
7. Balanced budget is recommended as a useful policy instrument when the economy is close to the level of full employment. How?
[Hint: Balanced budget causes a modest increase in the level of AD. Because: expenditure by the government raises AD by the same amount, while tax receipts reduce AD by 'MPC times' the tax receipts. A modest increase in AD would push the economy towards the point of full employment when it is marginally away from this point.
Note: Balanced budget (additional revenue being equal to additional expenditure) is a good strategy during periods of modest recession when aggregate demand needs a modest rise.]
8. Define fiscal policy. State the principal objectives of fiscal policy.
[Hint: Fiscal policy refers to revenue and expenditure policy of the government or budgetary policy of the government. Principal objectives of fiscal policy are the same as the principal objectives of the government budget.]

DOs and DON'Ts

1. **Financing the fiscal deficit should not be confused as the solution to the problem of fiscal deficit.**
Financing the fiscal deficit and solution to the problem of fiscal deficit are different propositions. Fiscal deficit may be financed through borrowing. But this is not the solution to the problem. The solution to the problem of fiscal deficit is to be found in terms of: (i) lowering the government expenditure, and (ii) raising the government revenue. However, it is not so easy to lower government expenditure in a country like India where a sizeable percentage of population belongs to BPL category. BPL population deeply depends on the government for food, shelter, clothing and education. Likewise (in India), it is not so easy for the government to increase its revenue. Taxation is the principal source of revenue. But when the bulk of population lives on low incomes, high rate of direct taxation (income and wealth tax) would only lead to high rate of tax evasion or unbearable hardship on the marginal families. Also, high rate of indirect taxation (like excise duty) would increase the cost of production and lower the inducement to invest.

The permanent solution to the problem of high fiscal deficit is to be found in **economic expansion**: GDP level and disposable income of the people should rise. Higher level of GDP would automatically generate higher revenue for the government. Also at higher level of income, government expenditure on public welfare would automatically shrink. A rise in revenue and a fall in expenditure would bring **fiscal discipline**.

2. Do not ever jump to the conclusion that balanced budget is an achievement of the government. A step towards balanced budget implies a step towards fiscal discipline in the country. It is essential when the economy is passing through the phase of inflationary spiral. But when the economy is battling the problem of excess capacity (underemployment of resources), the government is expected to intervene through high investment expenditure. It is high investment expenditure that would raise the level of AD and correct the problem of underemployment. Of course, investment expenditure may lead to deficit budget. But this is what is required to combat the problem of underemployment.



● **Significance or Importance of Public Expenditure (with reference to the Indian Economy)**

Following observations highlight the significance of public expenditure with reference to the Indian economy:

- (i) Public expenditure accelerates the pace of GDP growth. Higher rate of GDP growth is achieved through (a) investment expenditure in public sector enterprises, (b) capital grants by the government for the purchase of capital equipment, (c) subsidies for the purchase of inputs, and (d) purchase of farm output at the minimum support price.
- (ii) Public expenditure promotes equality in the distribution of income and wealth. This is achieved by offering old-age pensions, as well as by providing free food, education, and health services to the Below Poverty Line Population.
- (iii) Public expenditure plays a significant role in restoring economic stability. Particularly, when the economy is battling economic recession. The government expenditure (consumption expenditure as well as investment expenditure) raises the level of AD. Only when AD is raised that the vicious circle of economic recession is broken.
- (iv) Public expenditure generates investment-friendly environment in the economy. The government spends money on infrastructural development. It constructs roads, dams, bridges. It introduces faster and convenient means of transportation. Such facilities promote inducement to investment.

Briefly, public expenditure is indispensable in any welfare state like India. It not only promotes GDP growth, but also promotes social welfare.

● **Public Goods vs. Private Goods** **Public Goods**

Public goods are the goods which are meant for collective use by all sections of the society. **Example:** Law and order, defence and public administration. These goods have two characteristics: (i) non-rivalrous, and (ii) non-excludability.

(i) **Non-rivalrous:** These goods are non-rivalrous in the sense that the use of a public good by one individual does not reduce its availability for the other. **Example:** Parks, national defence, when used by one individual are not reduced for the other.

(ii) **Non-excludability:** These goods are non-exclusive in the sense that the use of a public good by those individuals who pay for it does not exclude others from using it who do not pay for it. **Example:** Street light may be a paid utility service. But those who do not pay cannot be excluded from the use/benefit of it. These goods, therefore, have the problem of free-riders': even those who do not pay for them continue to use them.

Private Goods

The opposite of a public good is a private good. A private good is rivalrous and excludable. Personal car of an individual is an example of a private good. It does not carry the characteristics of (i) non-rivalrous, and (ii) non-excludability. Because, this particular car when purchased by me reduces the availability of cars by one unit, and secondly, since I have paid for it, others obviously have no right to use it.

- **Free Rider Problem**

A free rider is a person who enjoys the benefits of goods and services without contributing to the full cost or partial cost of providing them. Consumers can take advantage of public goods without contributing sufficiently to their creation. This is called the free rider problem. The free rider problem is usually more acute in the case of public goods. The free rider problem exists when people enjoy the benefits of government provided goods independent of whether they pay for them. If too many consumers decide to 'free ride', private costs exceed private benefits and the incentive to provide the good or service through the market disappears. The market, thus, fails to provide a good or service for which there is a need.

- **Progressive and Regressive Nature of Taxation is Different from Progressive and Regressive Rates of Taxation**

Progressive Rate: The rate of taxation increases with increase in income.

Regressive Rate: The rate of taxation decreases with increase in income.

Proportionate Rate: The rate of taxation remains constant with increase or decrease in income.

Progressive Tax: A tax which (in terms of nature/effect) causes greater real burden on the rich compared to the poor.

Regressive Tax: A tax which (in terms of nature/effect) causes greater real burden on the poor compared to the rich.

This implies that even a proportionate tax is a regressive tax.



FOREIGN EXCHANGE RATE

TO
DO

- Foreign Exchange and Foreign Exchange Rate
- Flexible and Fixed Exchange Rate
- Managed Floating
- Components of Demand for Foreign Exchange
- Components of Supply of Foreign Exchange
- Foreign Exchange Market

I. FOREIGN EXCHANGE AND FOREIGN EXCHANGE RATE

Foreign exchange refers to foreign currency. The stock of foreign exchange with a country (say India) refers to the stock of all foreign currencies with the RBI at a point of time. The standard practice is to measure the entire stock in terms of US dollars, by converting the value of all currencies into US dollars.

The rate at which domestic currency can be exchanged for a foreign currency is known as foreign exchange rate. It is the price paid in domestic currency for buying a unit of the foreign currency. **Example:** If 50 rupees are to be paid to buy one US dollar, then the exchange rate is:

\$ 1 : ₹ 50

Thus, exchange rate expresses the ratio of exchange between the currencies of two countries. It is the price of a currency expressed in terms of another currency. It is also called 'external value of the domestic currency'.

In the words of **Crowther**, "The rate of exchange measures number of units of one currency which is exchanged in the foreign market for one unit of another."

2. FLEXIBLE AND FIXED EXCHANGE RATE

Exchange rate is broadly classified as: (i) flexible exchange rate, and (ii) fixed exchange rate. Following is a brief description of both these types:

Flexible Exchange Rate

Flexible rate of exchange (also called floating rate of exchange) is that rate which is determined by the supply-demand forces in the foreign exchange market. It is also called 'free exchange rate' as it is determined by the free play of supply and demand forces in the international money market.

The exchange rate at which demand for foreign currency is equal to its supply is called **Par Rate of Exchange or Equilibrium Rate of Exchange**.

Determination of Flexible Exchange Rate

Demand for and supply of foreign exchange are the two basic determinants of flexible exchange rate. Following is a brief description of both these determinants:

Demand for Foreign Exchange

Other things remaining constant, demand for foreign exchange is inversely related to the price of foreign exchange (or the rate of foreign exchange). Thus, higher the rate of foreign exchange, lower the demand for foreign exchange, and *vice versa*. Diagrammatically, demand for foreign exchange is indicated by a downward sloping curve as in Fig. 1.

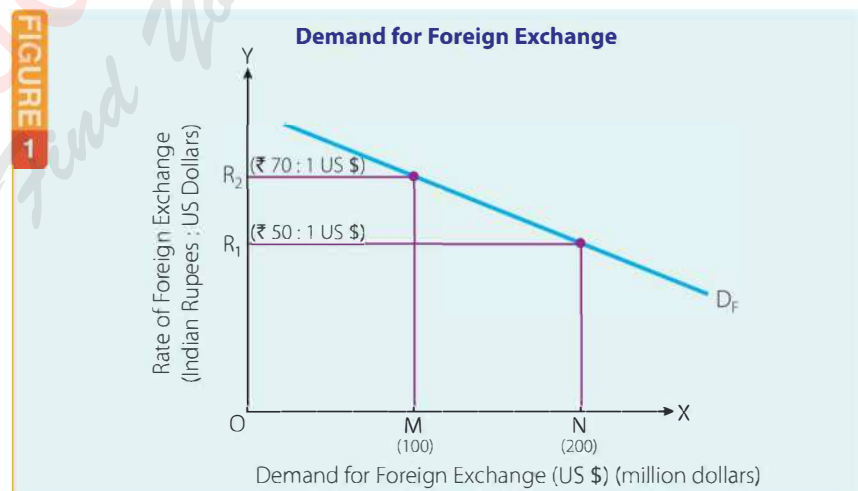


Fig. 1 shows that higher the exchange rate, lower the demand for foreign exchange. Thus, when exchange rate is ₹50 for one US dollar (R_1), the demand for US dollars is 200 million dollars (N). When the exchange rate rises to ₹70 : 1 US \$ (R_2), the demand shrinks to 100 million dollars (M).

Supply of Foreign Exchange

Other things remaining constant, supply of foreign exchange is positively related to the rate of foreign exchange. Thus, higher the rate of foreign exchange, higher the supply of foreign exchange, and vice versa.

Diagrammatically, supply of foreign exchange is indicated by an upward sloping curve, as in Fig. 2.

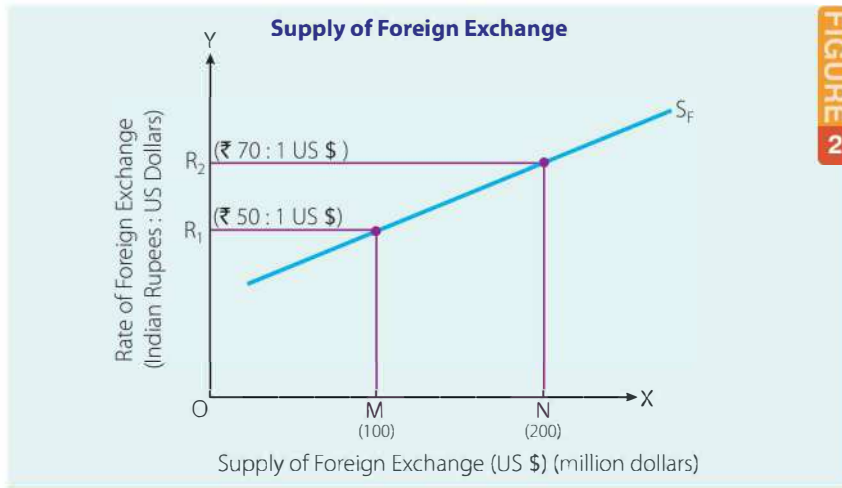


Fig. 2 shows that higher the exchange rate, greater the supply of foreign exchange. Thus, when exchange rate is ₹50 for one US dollar (R_1), supply = 100 million dollars (M). When the exchange rate rises to ₹70 for one US dollar (R_2), supply expands to 200 million dollars (N).

Equilibrium Rate of Exchange

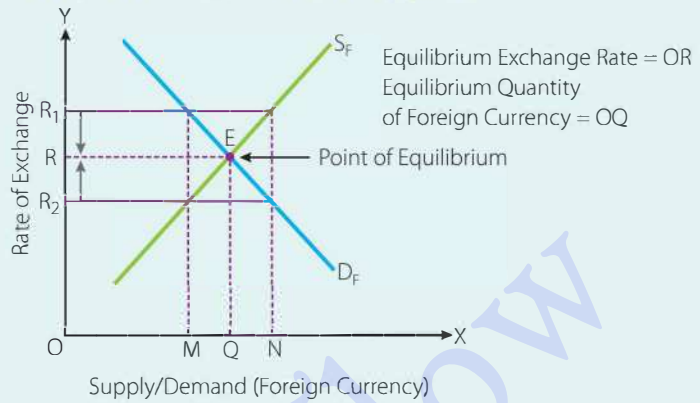
Or

Par Rate of Exchange

Equilibrium rate of exchange or par rate of exchange occurs when: **supply of foreign exchange = demand for foreign exchange**. Diagrammatically, equilibrium rate of exchange corresponds to point where supply and demand curves in the foreign exchange market intersect each other. Fig. 3 depicts this situation.

FIGURE 3

Determination of Equilibrium Exchange Rate



- S_F : Supply of foreign currency. It is positively related to the rate of exchange.
- D_F : Demand for foreign currency. It is negatively related to the rate of exchange.
- E : Point of equilibrium rate of exchange where supply and demand curves intersect each other.
- OQ : Equilibrium quantity where supply and demand for foreign exchange are equal.

In Fig. 3, supply and demand are measured on the X-axis, and exchange rate on the Y-axis. D_F is the demand curve and S_F is the supply curve of foreign currency. Both these curves intersect at point E. It is an equilibrium point and OR is the equilibrium rate of exchange. If the rate of exchange rises to OR_1 then supply of foreign currency (ON) will exceed its demand (OM) by an amount equivalent to MN. Supply being more than demand, rate of exchange will come down to OR. On the contrary, if the rate of exchange falls to OR_2 then demand for foreign currency (ON) will be more than its supply (OM) by MN. Demand being more than supply, rate of exchange will again rise to OR. Rate of exchange will ultimately be determined at a point where demand for and supply of foreign currency are equal.

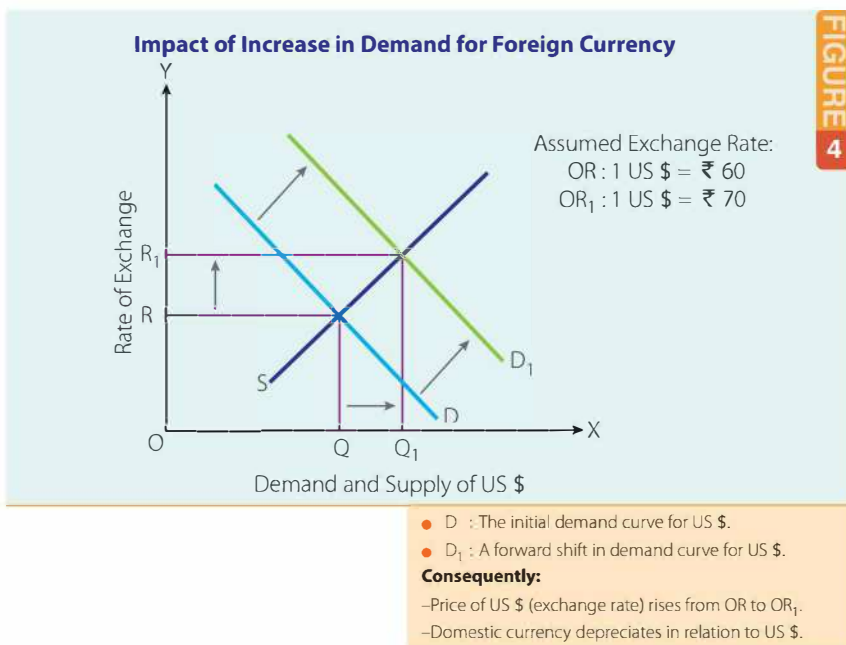
Impact of Change (Increase/Decrease) in Demand and Supply

Increase in demand for a foreign currency occurs when more of it is demanded at its existing price (exchange rate). Decrease in demand for a foreign currency occurs when less of it is demanded at its existing price (exchange rate). Likewise, increase in supply of a foreign currency occurs when more of it is supplied at its existing price (exchange rate). Decrease in supply of a foreign currency occurs when less of

it is supplied at its existing price (exchange rate). Let us examine the impact of these four situations on the equilibrium exchange rate. As a reference, let us consider the exchange rate between US dollar and Indian rupee.

Situation 1: Impact of Increase in Demand for a Foreign Currency (US \$): Depreciation of Domestic Currency

Increase in demand is reflected by a shift in demand curve to the right, as in Fig 4.

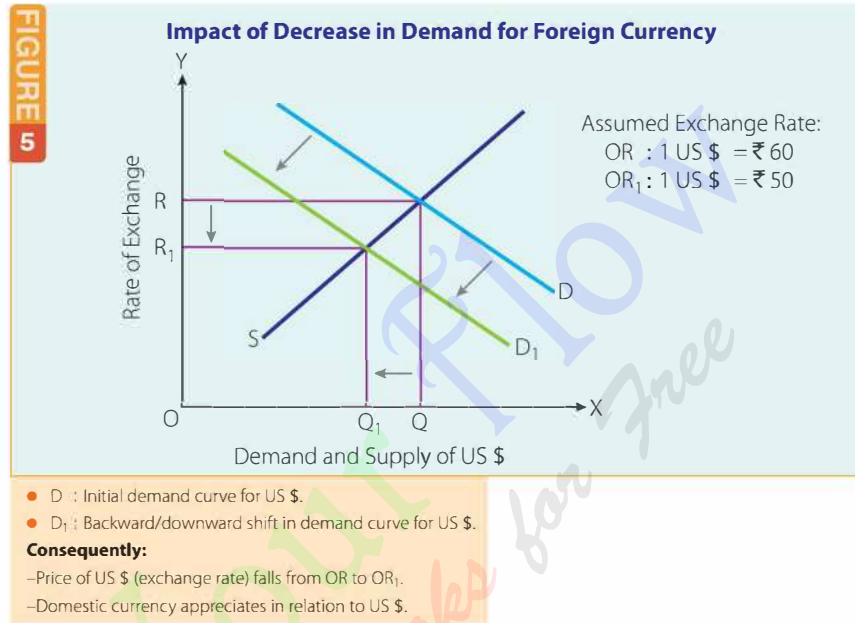


Demand curve shifts from D to D₁. This causes a rise in the equilibrium exchange rate from OR to OR₁. Now one US \$ is available for ₹ 70, instead of ₹ 60 earlier. Thus, other things remaining constant, increase in demand for foreign currency leads to a rise in exchange rate. This is described as a situation of **currency depreciation** (or depreciation of the domestic currency).

Currency depreciation refers to a situation when domestic currency (rupee) depreciates (or loses its value) in relation to a foreign currency (say US dollar). So that, you need more rupees to buy a dollar. **Example:** If US \$ exchanges for ₹ 70, instead of ₹ 60 earlier, the domestic currency (Indian rupee) shows depreciation.

Situation 2: Impact of Decrease in Demand for a Foreign Currency (US \$): Appreciation of Domestic Currency

Decrease in demand is reflected by a shift in demand curve to the left, as in Fig 5.



Demand curve shifts from D to D₁. This causes a fall in the equilibrium exchange rate from OR to OR₁. Now one US \$ is available for ₹ 50, instead of ₹ 60 earlier. Thus, other things remaining constant, decrease in demand for foreign currency leads to a fall in exchange rate. This is described as a situation of **currency appreciation** (or appreciation of the domestic currency).

Currency appreciation refers to a situation when domestic currency (rupee) appreciates (or gains its value) in relation to a foreign currency (say US dollar). So that, you need less rupees to buy a dollar.

Example: If US \$ exchanges for ₹ 50, instead of ₹ 60 earlier, the domestic currency (Indian rupee) shows appreciation.

Situation 3: Impact of Increase in Supply of Foreign Currency (US \$): Appreciation of Domestic Currency

Increase in supply is reflected by a shift in supply curve to the right, as in Fig 6.

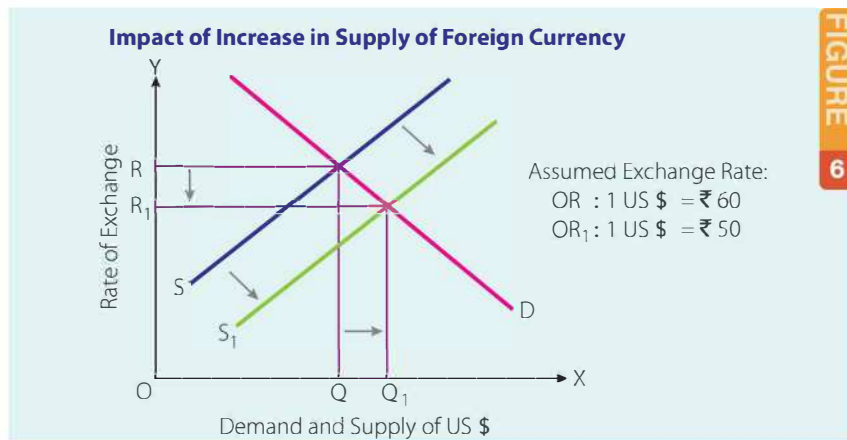


FIGURE 6

- S : Initial supply curve for US \$.
 - S₁ : Shift in supply curve to the right (increase in supply).
- Consequently:**
- Price of US \$ (exchange rate) falls from OR to OR₁.
 - Domestic currency appreciates in relation to US \$.

Supply curve shifts from S to S₁. This causes a fall in the equilibrium exchange rate from OR to OR₁. Now one US \$ is available for ₹ 50, instead of ₹ 60 earlier. Again, this is a situation of currency appreciation (or appreciation of the domestic currency).

Situation 4: Impact of Decrease in Supply of Foreign Currency (US \$): Depreciation of Domestic Currency

Decrease in supply is reflected by a shift in supply curve to the left, as in Fig. 7.

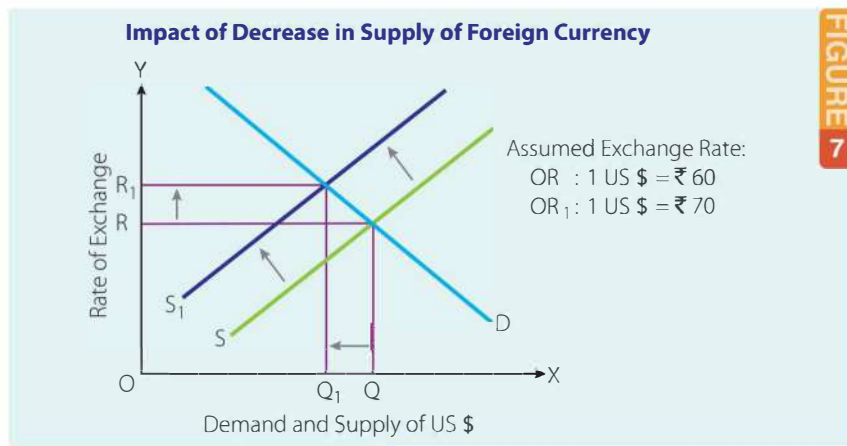


FIGURE 7

- S : Initial supply curve for US \$.
 - S₁ : Shift in supply curve to the left (decrease in supply).
- Consequently:**
- Price of US \$ (exchange rate) rises from OR to OR₁.
 - Domestic currency depreciates in relation to US \$.

Supply curve shifts from S to S_1 . This causes a rise in the equilibrium exchange rate from OR to OR_1 . Now, one US \$ is available for ₹ 70, instead of ₹ 60 earlier. This is a situation of currency depreciation (or depreciation of the domestic currency).

Briefly, exchange rate rises when demand for foreign currency rises or when supply of foreign currency falls. It leads to depreciation of the domestic currency. On the other hand, exchange rate falls when demand for foreign currency falls or when supply of foreign currency rises. It leads to appreciation of domestic currency.

Appreciation and Depreciation of Domestic Currency—The Difference

FOCUS ZONE	Appreciation of Domestic Currency	Depreciation of Domestic Currency
	<p>(i) It is a situation of a fall in exchange rate.</p> <p>(ii) Less rupees are needed to buy one US \$.</p> <p>(iii) Cause: Increase in supply of foreign exchange. or Decrease in demand for foreign exchange.</p> <p>(iv) Example: Exchange rate falls from (1 US \$: ₹ 60) to (1 US \$: ₹ 50).</p>	<p>(i) It is a situation of a rise in exchange rate.</p> <p>(ii) More rupees are needed to buy one US \$.</p> <p>(iii) Cause: Increase in demand for foreign exchange. or Decrease in supply of foreign exchange.</p> <p>(iv) Example: Exchange rate rises from (1 US \$: ₹ 60) to (1 US \$: ₹ 70).</p>

HOTS

Q. 1. How does appreciation and depreciation of the domestic currency affect exports and imports of the domestic economy?

Ans. **Appreciation of the domestic currency** implies (i) less rupees are required to buy a dollar. Accordingly, imports are likely to increase, and (ii) more dollars are required to buy a rupee. Accordingly, exports are likely to fall.

Depreciation of the domestic currency implies (i) more rupees are required to buy a dollar. Accordingly, imports are likely to fall, and (ii) less dollars are required to buy a rupee. Accordingly, exports are like to rise.

Q. 2. Explain why supply of a foreign currency rises in response to a rise in its exchange rate.

Ans. Rise in exchange rate implies appreciation of foreign currency in relation to domestic currency. It causes a rise in supply of foreign currency owing to the following situations:

- (i) Appreciation of foreign currency induces FDI (foreign direct investment) from rest of the world. Because, now one unit of the foreign currency converts into more units of the domestic currency. Accordingly, supply of foreign currency increases.
- (ii) Appreciation of foreign currency implies depreciation of the domestic currency. It induces exports from the domestic economy. Implying that the supply of foreign currency increases.
- (iii) Appreciation of foreign currency induces FII (foreign institutional investment—investment related to purchase of shares) in the domestic economy. Because, now purchasing power of the foreign currency rises in the domestic economy. This leads to increase in supply of foreign currency.

- (iv) Appreciation of foreign currency increases direct purchases by the non-residents in the domestic economy. Again, because of the rise in purchasing power of the foreign currency in the domestic market. This also causes increase in supply of foreign currency.
- (v) Appreciation of foreign currency increases remittances from abroad. Because, a unit of foreign currency converts into more units of the domestic currency. Accordingly, supply of foreign currency rises.

Q. 3. Why does the demand for foreign currency fall when its price rises?

Ans. A rise in the price of foreign currency implies that more units of the domestic currency (say rupees) are needed to buy a unit of foreign currency (say US \$). It leads to a fall in demand for foreign currency, owing to the following reasons:

- (i) With a rise in the price of foreign currency, imports tend to fall, leading to a fall in demand for foreign currency.
- (ii) A rise in price of foreign currency makes travelling to rest of the world more expensive. Accordingly, demand for foreign currency falls.
- (iii) Investment in rest of the world becomes more expensive, leading to a fall in demand for foreign currency.
- (iv) Opportunity cost of holding foreign currency (in terms of domestic currency) tends to rise. Accordingly, demand for foreign currency tends to shrink.

Fixed Exchange Rate

Exchange rate is said to be fixed when it is **set and maintained** by the government at a particular level. The government may set it at a level higher or lower than the equilibrium exchange rate as determined by the market forces of supply and demand.

When Exchange Rate is set higher than the Equilibrium Exchange Rate

Fig. 8 illustrates the situation when exchange rate is set higher than the equilibrium exchange rate.

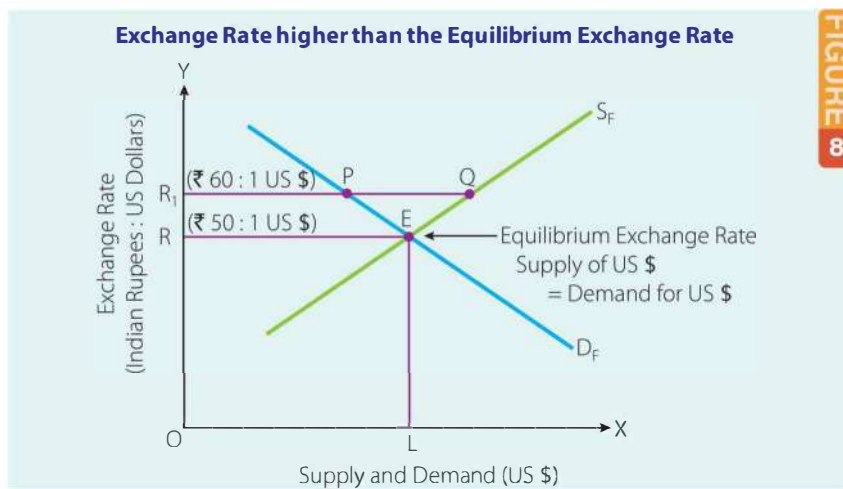


FIGURE 8

In Fig. 8, S_F shows the supply of US dollars and D_F shows the demand for US dollars.

OR is the equilibrium exchange rate : 1 US \$ is exchanged for ₹50.

OR_1 is the exchange rate as set by the government. Here, 1 US \$ is exchanged for ₹60.

Thus, the value of the domestic currency (Indian rupee) has been deliberately lowered by the government. This is called 'devaluation'.

Devaluation of the currency is different from Depreciation of the currency. The difference is as under:

Depreciation of the (domestic) currency occurs when the value of the (domestic) currency reduces in the international money market, because of the market forces of supply and demand. The government plays no role whatsoever.

Devaluation of the (domestic) currency occurs when the value of the domestic currency is deliberately reduced by the government by raising the exchange rate. The market forces of supply and demand play no role whatsoever.



Depreciation vs. Devaluation

Depreciation of the (domestic) currency occurs when the value of the domestic currency reduces in the international money market, because of the market forces of supply and demand. The government plays no role whatsoever.

Devaluation of the (domestic) currency occurs when the value of the domestic currency is deliberately reduced by the government by raising the exchange rate. The market forces of supply and demand play no role whatsoever.

Implications of Devaluation

Devaluation leads to excess supply of foreign currency in the international money market (in a state of equilibrium).

In Fig. 8, excess supply ($S_F > D_F$) = PQ. This would lead to a fall in the exchange rate. In which situation the very purpose of devaluation would be lost. It, therefore, becomes essential for the government to absorb the excess supply by way of its own purchase of the foreign currency in the international money market. Accordingly, the government-reserves of forex (foreign exchange) must rise. (It may be noted that in India, RBI is engaged in the sale and purchase of foreign currency in the international money market.)

When Exchange Rate is set lower than the Equilibrium Exchange Rate

Fig. 9 illustrates the situation when exchange rate is set lower than the equilibrium exchange rate.

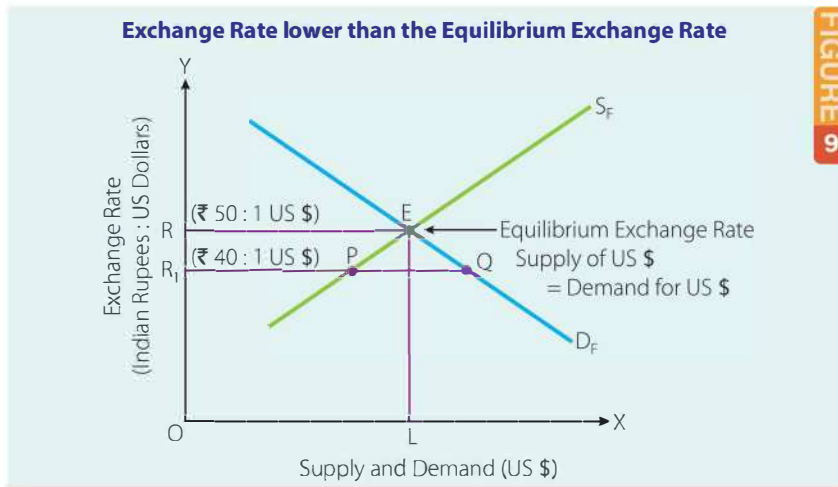


FIGURE 9

In Fig. 9, OR is the equilibrium exchange rate: 1 US \$ is exchanged for ₹ 50.

OR_1 is the exchange rate as fixed by the government. Here, 1 US \$ is exchanged for ₹ 40.

Thus, the value of the domestic currency (Indian rupee) has been deliberately raised by the government. This is called 'Revaluation'.

Revaluation of the currency is different from Appreciation of the currency. The difference is as under:

Appreciation of the (domestic) currency occurs when the value of the (domestic) currency rises in the international money market, because of the market forces of supply and demand. The government plays no role whatsoever.

Revaluation of the (domestic) currency occurs when the value of the domestic currency is deliberately raised by the government by lowering the exchange rate. The market forces of supply and demand play no role whatsoever.

Appreciation vs. Revaluation

Appreciation of the (domestic) currency occurs when the value of the domestic currency rises in the international money market, because of the market forces of supply and demand. The government plays no role whatsoever.

Revaluation of the (domestic) currency occurs when the value of the domestic currency is deliberately raised by the government by lowering the exchange rate. The market forces of supply and demand play no role whatsoever.



Implications of Revaluation

Revaluation leads to excess demand for foreign currency in the international money market. The RBI must fulfil this excess demand by releasing supplies from its reserves of forex.

In case supplies are not released from the reserves of forex, there may emerge a black market for the sale and purchase of dollars. The buyers may have to pay a premium for the purchase of dollars over and above the price fixed by the government.

Less Developed Countries often Devalue their Currency

Less developed countries often devalue their currency: domestic currency is made cheaper in relation to the foreign currency. This is because of the three principal reasons:

- (i) Devaluation (implying a planned fall in the value of the domestic currency) is expected to raise the demand for the domestically produced goods and services. Accordingly, exports are expected to rise.
- (ii) Rise in exports (owing to devaluation) is expected to increase the supply of foreign exchange into the domestic economy. This facilitates import of essential goods from rest of the world.
- (iii) A fall in the value of domestic currency induces private foreign investment. Because, for every dollar, the investors are going to get more rupees, after devaluation. This is expected to promote GDP growth.

Gold Standard System of Exchange Rate— An Old Variant of Fixed Exchange Rate System

Gold standard system of exchange rate is an old variant of fixed exchange rate system.

According to this system (prevalent in most countries prior to 1920s), gold was taken as the common unit of parity between currencies of different countries. Each country was to define value of its currency in terms of gold. Accordingly, value of one currency in terms of the other currency was fixed considering gold value of each currency.

Illustration

If UK £ (Pound) = 4 g of gold and US \$ (Dollar) = 2 g of gold, then 1 UK £ = 2 US \$. Exchange rate or exchange ratio between UK £ and US \$ = 1 : 2. Two US dollars would exchange for 1 UK pound. This system of exchange was also known as **Mint Par Value of Exchange or Mint Parity**. Mint value of a currency implied gold value of that currency.

Bretton Woods System of Exchange Rate

Or

Adjustable Peg System of Exchange Rate

Bretton Woods System (even when it was a fixed system of exchange rate) allowed some adjustments. So, it was called 'adjustable peg system of exchange rate'. According to this system,

- (i) Different currencies were pegged (or related) to one currency, that is US dollar.
- (ii) US dollar was assigned gold value at a fixed price.

Did You Know it?

Bretton Woods System is named after United Nations Monetary Financial Conference held at Bretton Woods (USA) in 1944 which led to the establishment of IMF (International Monetary Fund).

- (iii) Value of one currency in terms of US dollar ultimately implied value of that currency in terms of gold.
- (iv) Gold continued to be the ultimate unit of parity between any two currencies.
- (v) Adjustment in the parity value of a currency was possible but only if allowed by IMF (International Monetary Fund).

Even this system was abandoned in 1977. It was replaced by a flexible system of exchange rate.

Fixed and Flexible Exchange Rate—Key Differences

Fixed Exchange Rate	Flexible Exchange Rate
<ul style="list-style-type: none"> (i) Fixed exchange rate is determined by the government. (ii) Changes in the fixed rate of exchange are planned and introduced by the government, or the Central Bank of the country (RBI in India). (iii) As set and maintained by the government, the fixed rate of exchange leads to: (a) devaluation (when the value of the domestic currency is lowered by the government), or (b) revaluation (when the value of the domestic currency is raised by the government). (iv) To maintain the fixed rate of exchange at a particular level, the government needs to keep a large stock of foreign exchange. (v) Degree of speculation is very low in the system of fixed exchange rate. It arises only when people expect some change in the government policy. 	<ul style="list-style-type: none"> (i) Flexible exchange rate is determined by the forces of supply and demand in the international money market. (ii) Changes in the flexible rate of exchange are linked to changes in the market forces of supply and demand. (iii) As determined by the forces of supply and demand, flexible rate of exchange leads to: (a) depreciation of the domestic currency (when the exchange rate rises), and (b) appreciation of the domestic currency (when the exchange rate falls). (iv) Flexible exchange rate does not require any large stock of foreign exchange, as its level is set by the market forces of supply and demand. (v) Degree of speculation is very high in the system of flexible exchange rate. It is because of the uncertainty of market forces of supply and demand.



Q. Why was gold standard system of exchange rate abandoned (discontinued)?

Ans. This was because this system required lots of reserves of gold. This raised the demand for gold. But, the supply of gold was extremely scarce in relation to its demand.

3. MANAGED FLOATING

Even when exchange rate is determined by the forces of supply and demand, at times the Central Bank (RBI) intervenes to manage the exchange rate so that it does not slip out of the desired limits. It is called managed floating. It may be defined as under:

Managed floating is a system of floating exchange rate in which there is occasional intervention by the central bank to influence the float or manage the float. It is also called 'Dirty Floating'.

How does the central bank exercise its influence on the 'float' or market exchange rate?

It is through the sale and purchase of foreign currency in the international money market. When the exchange rate (say of US \$) needs to be reduced, the central bank releases the supply of US \$ in the foreign exchange market. Other things remaining constant, higher supply of US \$ would lower the price of US \$, as desired. This would lead to appreciation of domestic currency.

On the other hand, when the exchange rate needs to be raised, the central bank increases its demand for US \$ in the foreign exchange market. Other things remaining constant, higher demand for US \$ would raise the price of US \$, as desired. This would lead to depreciation of the domestic currency.

Briefly, **managed floating is an exercise of sale and purchase of foreign currency by the central bank, so that the exchange rate is managed within the desired limits.**



Managed floating is a tool employed by the central bank to restore the value of the country's currency (in relation to other currencies) within the desired limits, even when exchange rate is determined by the market forces of demand and supply.

In fact, managed floating may be called as the mixture of both flexible and fixed exchange rate systems. It comprises the element of flexible exchange rate system as the exchange rate is primarily determined by the forces of supply and demand. Likewise, it comprises the element of fixed exchange rate system as the exchange rate is moderated (or managed) by way of intervention by the RBI.

4. COMPONENTS OF DEMAND FOR FOREIGN EXCHANGE (FOREIGN CURRENCY)

OR

WHY IS FOREIGN EXCHANGE DEMANDED?

Foreign exchange is demanded for various purposes. Basically, it is demanded for making payments to rest of the world. Each type of payment constitutes a component of demand for foreign exchange. Broadly, following are the constituents of demand for foreign exchange:

- (1) **Repayment of International Loans:** International loans are raised in terms of foreign currency. Accordingly, foreign currency is required for the repayment of these loans. In less developed countries like India, this is an important component of demand for foreign exchange.
- (2) **Investment in Rest of the World:** Investment in rest of the world is an important business activity. We need currency of the

country in which investment is to be made. Thus, US dollars are needed/demanded if investment is to be made in USA.

- (3) **Imports:** We import goods (like cellphones and TVs) and services (like of banking and insurance) from rest of the world. It requires foreign exchange. Because payments for imports are made in foreign exchange only.
- (4) **Direct Purchases Abroad:** Foreign exchange is needed to make direct purchases (of goods and services) abroad. Because, people from our country visit other countries of the world as tourists. They also go abroad for studies or for medical treatment. This involves direct purchases abroad.
- (5) **Grants and Donations:** Grants and donations (unilateral payments) to rest of the world also contribute to the demand for foreign exchange. Grants and donations to a country are often made in terms of the currency of that country (or in terms of some internationally accepted currency like US dollars).
- (6) **Payment of Incomes:** Demand for foreign exchange in the domestic economy also arises for the payment of factor incomes (rent, interest, profit/dividend and wages) which are repatriated (sent) abroad. It is like factor income to rest of the world.
- (7) **Speculative Trading:** Foreign exchange (particularly in terms of strong currencies like US dollar) is held/demanded by the people for purpose of speculative trading. Often, more foreign exchange is held when the exchange rate is low, and *vice versa*.

Together, these components of demand add up to aggregate demand for foreign exchange.

5. COMPONENTS OF SUPPLY OF FOREIGN EXCHANGE (FOREIGN CURRENCY) OR SOURCES OF FOREIGN EXCHANGE

Supply of foreign exchange depends on the following sources. Each source constitutes a component of supply of foreign exchange. A country receives foreign exchange through the following sources of supply:

- (1) **Exports:** Export of goods and services is an important source of supply (inflow) of foreign exchange from rest of the world. Thus, export of goods and services from India to US would mean supply of foreign exchange to India (in terms of receipts for exports).

- (2) **Investments from Rest of the World:** Investments from rest of the world (including FII and FDI) is another important source of supply of foreign exchange. Lots of foreign exchange flows from developed countries to underdeveloped countries through this channel of economic activity.
- (3) **Direct Purchases by Rest of the World:** Direct purchases by the residents of rest of the world also contribute to the flow of foreign exchange from rest of the world to the domestic economy.
- (4) **Loans from Rest of the World:** It refers to borrowings from rest of the world. A loan from UK would mean flow of UK £ from UK to India. It contributes to the supply of foreign exchange to India.
- (5) **Grants and Donations from Rest of the World:** Grants and donations from rest of the world are also a source of supply of foreign exchange. A significant amount of foreign exchange flows from rich to the poor countries of the world by way of grants and donations.
- (6) **Income Receipts:** Foreign exchange also flows from rest of the world to the domestic economy by way of income receipts. These receipts refer to receipts of factor incomes from rest of the world.
- (7) **Remittances by the Non-residents:** Remittances by NRIs are an important source of supply/receipt of foreign exchange from rest of the world. Such remittances are indeed a significant component of supply of foreign exchange in developing economies like India.

Together these components of supply add up to aggregate supply of foreign exchange.

HOTS

Q. 1. State any two factors that explain extension of demand for a foreign currency in response to a fall in its price.

- Ans. (i) When foreign currency (say US \$) becomes cheaper (in relation to the domestic currency), we get more dollars per unit of our currency. Accordingly, imports become lucrative. This raises demand for foreign currency.
- (ii) When foreign currency becomes cheaper, domestic investors will be induced to make greater investment in rest of the world. Accordingly, demand for foreign currency rises.

Q. 2. State any two factors that explain contraction of supply of a foreign currency when its price in terms of the domestic currency falls.

- Ans. (i) When foreign currency becomes cheaper (in relation to domestic currency), purchasing power of the foreign currency in the domestic market tends to fall. This leads to a fall in foreign demand for the domestic goods. Implying fall in our exports. Accordingly, supply of foreign currency reduces.
- (ii) When foreign currency becomes cheaper (in relation to domestic currency), less rupees are available for a US dollar. Accordingly, foreigners are less inclined to make FDI (Foreign Direct Investment). This reduces the supply of foreign currency.

6. FOREIGN EXCHANGE MARKET

Foreign exchange market refers to the market for national currencies of different countries in the world. It is a centre of trade for different currencies. Buyers and sellers in foreign exchange market wish to buy or sell foreign exchange.

Functions

Foreign exchange market performs the following functions:

- (1) **Transfer Function:** It implies transfer of purchasing power in terms of foreign exchange across different countries of the world.
- (2) **Credit Function:** It implies provision of credit in terms of foreign exchange for the export and import of goods and services across different countries of world.
- (3) **Hedging Function:** It implies protection against risk related to variations in foreign exchange rate. Exchange rate is locked for future supplies of foreign exchange.

Operation of Foreign Exchange Market

Foreign exchange market operates either as

- (1) Spot Market (Current Market), or as
- (2) Forward Market.

(1) Spot Market (Current Market)

Spot market for foreign exchange is that market which handles only spot transactions or current transactions.

Its principal characteristics are that:

- (i) In terms of 'period of transaction', spot market is of '**daily nature**'. It does not trade in future deliveries.
- (ii) The rate of exchange which is determined in the spot market is known as spot rate of exchange. **The spot rate of exchange (or current rate of exchange) is that rate which prevails at the time when transactions are made.**

(2) Forward Market

Forward market for foreign exchange is that market which handles such transactions of foreign exchange that are meant for future delivery. Such transactions are signed today but are to materialise (or are to be honoured) on some future date.

Principal characteristics of forward market are that:

- (i) It only caters to forward transactions; it does not deal with spot transactions in foreign exchange.
- (ii) It defines (or determines) forward exchange rate—the exchange rate at which forward transactions are to be honoured.

Why are Forward Transactions Contracted?

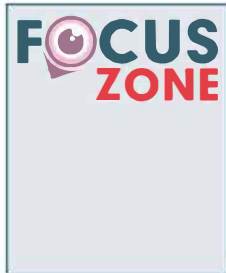
Forward transactions are contracted for two reasons:

- (i) To avoid the risk of any adverse change in exchange rate, and
- (ii) To make speculative gains.

Spot Market and Forward Market—The Difference

Spot Market	Forward Market
(i) It handles current transactions.	(i) It handles transactions meant for future delivery.
(ii) Rate of exchange determined in this market is called spot rate of exchange.	(ii) Rate of exchange determined in this market is called forward exchange rate or contracted exchange rate.
(iii) It does not allow 'hedging'.	(iii) It allows 'hedging'.

'Hedging' means avoiding the risk of an adverse change in exchange rate by signing foreign exchange transactions for future delivery.



Spot exchange rate (also known as current rate of exchange) is that rate of exchange which prevails in the market at the time when transactions are made. It relates only to spot transactions in the international money market.

Forward exchange rate is that exchange rate at which forward transactions are to be honoured. It has nothing to do with spot transactions in the international money market. In fact, forward exchange rate is a sort of 'contracted' exchange rate to be applicable for the transactions which are signed today but are to be honoured sometimes in the future.

Power Points & Revision Window

Exchange Rate refers to the price of one currency in relation to other currencies in the international money market (or international exchange market). [Example: If ₹ 50 are to be paid to buy one US dollar, exchange rate between the two currencies = 50 : 1.]

- **Systems:** (i) Flexible exchange rate system, (ii) Fixed exchange rate system.

Flexible Exchange Rate is a float rate of exchange, determined by the supply of and demand for different currencies.

When, owing to the free play of the forces of supply and demand, exchange rate happens to rise, it is called 'depreciation' of the (domestic) currency. On the other hand, when exchange rate happens to fall, it is called 'appreciation of the (domestic) currency.

Equilibrium Exchange Rate occurs when:

Supply of foreign currency/foreign exchange = Demand for foreign currency/foreign exchange

- **Demand for Foreign Currency/Foreign Exchange** depends upon: (i) Repayment of international loans, (ii) Investment in rest of the world, (iii) Imports, (iv) Direct purchases abroad, (v) Grants and donations, (vi) Payment of incomes, (vii) Speculative trading.
- **Supply of Foreign Currency/Foreign Exchange** depends upon: (i) Exports, (ii) Investments from rest of the world, (iii) Direct purchases by rest of the world, (iv) Loans from rest of the world, (v) Grants and donations from rest of the world, (vi) Income receipts, (vii) Remittances by the non-residents.

Fixed Exchange Rate System: Exchange rate is set and maintained by the government at a particular level. Market forces of supply and demand have no role to play. When the exchange rate is raised by the government, it is called 'devaluation' of the (domestic) currency. When it is lowered, it is called 'revaluation' of the (domestic) currency.

- **Determination:** Fixed exchange rate is determined by the government of the country.

Managed Floating, also called Dirty Floating, is a system of floating exchange rate (where exchange rate is determined by the forces of demand and supply) but occasionally, the float is managed by the central bank of the country by way of sale and purchase of foreign exchange in the international money market. Managed floating is an attempt to keep the exchange rate within the desired limits.

Foreign Exchange Market refers to the market for national currencies of different countries of the world.

- **Functions:** (i) Transfer function, (ii) Credit function, (iii) Hedging function.
- **Spot Market** deals with current sale and purchase of foreign exchange. It determines spot rate of exchange.
- **Forward Market** deals with such sale and purchase of foreign exchange which are contracted today but are implemented sometimes in the future. It determines forward rate of exchange.

EXERCISE

1. Objective Type Questions (Remembering & Understanding based Questions)

A. Multiple Choice Questions

Choose the correct option:

- Price of one currency in relation to other currencies in the international exchange market is known as:
(a) equilibrium rate (b) fixed exchange rate
(c) exchange rate (d) flexible exchange rate
- According to Adjustable Peg System (or Bretton Woods System) of Exchange Rate:
(a) different currencies were pegged to one currency (US dollar)
(b) US dollar was assigned gold value at a fixed price
(c) parity between two currencies was determined by the quantity of gold contained in them
(d) all of these
- Under which system, gold was taken as the common unit of parity between currencies of different countries in circulation?
(a) Bretton Woods System of Exchange Rate (b) Gold Standard System of Exchange Rate
(c) Flexible Exchange Rate System (d) Managed Floating System of Exchange Rate
- Out of the following, which is the most rigid exchange rate system, which does not allow any adjustment in the exchange rate?
(a) Flexible Exchange Rate System (b) Gold Standard System of Exchange Rate
(c) Bretton Woods System of Exchange Rate (d) None of these
- The rate which is determined by the government is known as:
(a) flexible exchange rate (b) fixed exchange rate
(c) floating exchange rate (d) none of these
- The exchange rate at which demand for foreign currency becomes equal to its supply, is called:
(a) equal rate of exchange (b) mint parity
(c) equilibrium exchange rate (d) all of these
- What is the relationship between demand for foreign exchange and exchange rate?
(a) Inverse (b) Direct
(c) One to one (d) No relationship
- When supply of foreign exchange increases, the equilibrium exchange rate will:
(a) rise (b) fall
(c) not change (d) either rise or fall
- Demand for foreign currency depends upon:
(a) repayment of international loans
(b) investment in rest of the world
(c) direct foreign investment in the domestic economy
(d) both (a) and (b)
- Due to depreciation of foreign currency, the supply of foreign currency in domestic economy will:
(a) increase (b) not change
(c) either increase or decrease (d) decrease

11. Direct foreign investment is a source of:
 - (a) demand for foreign exchange
 - (b) supply of foreign exchange
 - (c) both (a) and (b)
 - (d) none of these
12. When the exchange rate rises due to managed floating, it is called:
 - (a) devaluation
 - (b) appreciation
 - (c) depreciation
 - (d) revaluation
13. Which of the following functions are performed in a foreign exchange market?
 - (a) Transfer function
 - (b) Credit function
 - (c) Hedging function
 - (d) All of these
14. Hedging is possible in:
 - (a) spot market
 - (b) forward market
 - (c) managed floating system
 - (d) none of these
15. Spot market is that market where:
 - (a) only current transactions are handled
 - (b) forward rate of exchange is determined
 - (c) instant rate of exchange is determined
 - (d) both (a) and (c)
16. Forward market is that market which:
 - (a) handles transactions of foreign exchange meant for future delivery
 - (b) handles current transactions
 - (c) handles current as well as future transactions
 - (d) none of these
17. If ₹ 120 are required to buy \$ 1, instead of ₹ 100 earlier:
 - (a) domestic currency has appreciated
 - (b) domestic currency has depreciated
 - (c) rupee value of import bill will increase
 - (d) both (b) and (c)
18. Equilibrium exchange rate occurs when:
 - (a) supply of foreign exchange > demand for foreign exchange
 - (b) supply of foreign exchange = demand for foreign exchange
 - (c) supply of foreign exchange < demand for foreign exchange
 - (d) both (a) and (b)
19. Dirty floating is related to:
 - (a) fixed system of exchange rate
 - (b) flexible system of exchange rate
 - (c) both of these
 - (d) none of these

Answers

1. (c) 2. (d) 3. (b) 4. (b) 5. (b) 6. (c) 7. (a) 8. (b) 9. (d) 10. (d)
 11. (b) 12. (c) 13. (d) 14. (b) 15. (d) 16. (a) 17. (d) 18. (b) 19. (b)

B. Fill in the Blanks

Choose appropriate word and fill in the blank:

1. Foreign exchange refers to _____ currency. (domestic/foreign)
2. _____ exchange rate is also called free exchange rate. (Fixed/Flexible)

3. Decrease in demand for foreign currency leads to a _____ in exchange rate. (fall/rise)
4. _____ is an exercise of sale and purchase of foreign currency by the central bank.
(Managed floating/floating exchange rate)
5. Demand for foreign exchange is _____ related to the rate of foreign exchange.
(positively/negatively)
6. _____ of domestic currency is a situation of a rise in exchange rate.
(Appreciation/Depreciation)
7. _____ leads to a rise in supply of foreign currency. (Devaluation/Revaluation)
8. Direct purchases by rest of the world is an important source of _____ of/for foreign exchange.
(supply/demand)
9. _____ exchange rate is determined by the free play of supply and demand forces in the international money market. (Fixed/Flexible)
10. Currency appreciation refers to a situation when domestic currency _____ its value in relation to a foreign currency. (loses/gains)

Answers

- | | | | |
|---------------|-----------------|----------------|---------------------|
| 1. foreign | 2. Flexible | 3. fall | 4. Managed floating |
| 5. negatively | 6. Depreciation | 7. Devaluation | 8. supply |
| | | | 9. Flexible |
| | | | 10. gains |

C. True or False

State whether the following statements are True or False:

1. Rise in exchange rate implies appreciation of foreign currency in relation to domestic currency. (True/False)
2. Mint value of a currency implied paper value of that currency. (True/False)
3. In case of depreciation of the domestic currency, exports are likely to rise. (True/False)
4. Bretton woods system of exchange rate was replaced by a dirty floating system of exchange rate. (True/False)
5. When foreign currency becomes cheaper (in relation to domestic currency), less rupees are available for a US dollar. (True/False)
6. Spot market is of daily nature. (True/False)
7. Managed floating comprises only the element of fixed exchange rate system. (True/False)
8. Buyers and sellers in foreign exchange market wish to buy or sell foreign exchange. (True/False)
9. Exchange rate is the price of a currency expressed in terms of gold. (True/False)
10. Forward exchange rate is that exchange rate at which current transactions are to be honoured. (True/False)

Answers

1. True 2. False 3. True 4. False 5. True 6. True 7. False 8. True 9. False 10. False

D. Matching the Correct Statements

I. From the set of statements given in Column I and Column II, choose the correct pair of statements:

Column I	Column II
(a) Supply curve of foreign exchange	(i) Downward sloping curve
(b) Depreciation of the domestic currency	(ii) Value of the domestic currency is deliberately reduced by the government
(c) Repayment of international loans	(iii) A source of supply of foreign exchange
(d) Exports from India to US	(iv) Demand for foreign exchange from India
(e) Appreciation of domestic currency	(v) Government plays no role whatsoever

Answer

(e) Appreciation of domestic currency—(v) Government plays no role whatsoever

II. Identify the correct sequence of alternatives given in Column II by matching them with respective items in Column I:

Column I	Column II
(a) Exchange rate	(i) Supply of foreign exchange = Demand for foreign exchange
(b) Gold standard system of exchange rate	(ii) Domestic currency loses its value in relation to a foreign currency
(c) Fixed exchange rate	(iii) External value of the domestic currency
(d) Par rate of exchange	(iv) Determined by the government
(e) Currency depreciation	(v) An old variant of fixed exchange rate system

Answers

(a)—(iii), (b)—(v), (c)—(iv), (d)—(i), (e)—(ii)

E. 'Very Short Answer' Objective Type Questions

1. Define foreign exchange rate.

Ans. The rate at which one currency exchanges for the other currency in the international money market is known as foreign exchange rate.

2. What is fixed exchange rate?

Ans. Fixed rate of exchange is a rate which is set and maintained by the government of a country.

3. Define flexible exchange rate.

Ans. Flexible rate of exchange is that rate which is determined by the demand for and supply of foreign exchange in the international money market.

4. What is 'float' rate of exchange?

Ans. Float rate of exchange refers to flexible rate of exchange as determined by the demand and supply forces of foreign exchange in the international money market.

5. What do you mean by managed floating?

Ans. Managed floating refers to managing the float rate of exchange by the central bank (RBI) by way of sale and purchase of foreign exchange in the international money market. It is also called 'Dirty Floating'.

6. **At what point equilibrium rate of exchange is determined?**
 Ans. Equilibrium exchange rate is determined at the point where demand for foreign currency and supply of foreign currency are equal to each other.
7. **What is meant by currency appreciation?**
 Ans. Currency appreciation refers to a rise in the value of domestic currency in relation to a foreign currency. Example: 50 rupees are required to buy one US dollar, instead of 60 rupees earlier.
8. **What is meant by currency depreciation?**
 Ans. Currency depreciation refers to a fall in the value of domestic currency in relation to a foreign currency. Example: 60 rupees are required to buy one US dollar, instead of 50 rupees earlier.
9. **What is meant by currency devaluation?**
 Ans. Currency devaluation refers to fall in the value of the domestic currency in relation to a foreign currency as planned by the government. It is not related to the supply-demand forces in the international money market.
10. **What is meant by currency revaluation?**
 Ans. Currency revaluation refers to rise in the value of the domestic currency in relation to a foreign currency as planned by the government. It is not related to the supply-demand forces in the international money market.
11. **What is foreign exchange market?**
 Ans. Foreign exchange market is that market which handles supply and demand (and therefore, trade) of the currencies of different countries.
12. **What is spot market?**
 Ans. Spot market in foreign exchange is that market which covers sale and purchase of foreign exchange of the daily nature. This is also called current market of foreign exchange.
13. **Define forward market.**
 Ans. Forward market in foreign exchange is that market which covers such business deals (of sale and purchase) of foreign exchange which are contracted today but are honoured sometimes in the future.
14. **What is spot exchange rate?**
 Ans. Spot exchange rate is that exchange rate which prevails in the market when transactions are made.
15. **What is forward exchange rate?**
 Ans. Forward exchange rate is that exchange rate at which forward transactions are to be honoured. It is a sort of 'contracted' exchange rate to be applicable for the transactions which are signed today but are to be honoured sometimes in the future.
16. **What is hedging?**
 Ans. Hedging means protection against the risk related to variations in foreign exchange rate. Exchange rate is locked for future supplies of foreign exchange.
17. **What are forward transactions?**
 Ans. Transactions that are signed today but will materialise on some future date are called forward transactions.

2. Reason-based Questions (Comprehension of the Subject-matter)

Read the following statements carefully. Write True or False with a reason.

1. Flexible exchange rate depends upon supply and demand parameters of foreign exchange in the foreign exchange market.
 Ans. True. Flexible exchange rate is determined by the demand for and supply of foreign exchange in the foreign exchange market.

2. In the event of depreciation of the country's currency, its exports tend to increase while imports tend to decrease.
- Ans. True. Because due to depreciation, value of domestic currency decreases in relation to the foreign currency. Accordingly, goods become cheaper in the domestic economy which encourages exports, and goods become costlier in the foreign market which discourages imports.
3. Forward rate of exchange is a contractual rate of exchange.
- Ans. True. Forward rate of exchange is a contractual rate of exchange. Because it is a contract signed today, to be honoured sometimes in the future.
4. Fixed exchange rate is determined by the forces of demand and supply in the international money market.
- Ans. False. Fixed exchange rate is not determined by the forces of demand and supply in the international money market. Instead, it is set and maintained by the government of a country.
5. Speculative purchases of foreign exchange by the domestic investors in the international money market does not impact the float rate of exchange.
- Ans. False. Speculative purchases of foreign exchange by the domestic investors in the international money market is an important component of demand for foreign exchange, and therefore, impacts the float rate of exchange.
6. The rising demand for foreign goods implies higher demand for foreign exchange.
- Ans. True. The rising demand for foreign goods implies greater imports and hence higher demand for foreign exchange.
7. Flexible exchange rate is determined by the WTO.
- Ans. False. Flexible exchange rate is determined by the forces of supply and demand in the international money market.
8. Forward market in foreign exchange is that market which deals with sale and purchase of foreign exchange for current transactions.
- Ans. False. Forward market in foreign exchange is that market which deals with sale and purchase of foreign exchange for future delivery.
9. Appreciation of the Indian currency occurs when more rupees are to be paid for a US \$.
- Ans. False. In case of appreciation, the value of domestic currency increases in relation to the value of other currency and hence less rupees are to be paid for a US \$.
10. Greater flow of foreign exchange from rest of the world always indicates higher level of development of the domestic economy.
- Ans. False. Because greater flow of foreign exchange may be occurring on account of borrowings from rest of the world.

3. HOTS & Applications

1. The market price of US dollar has increased considerably leading to rise in rupee value of imports of essential goods. What can the RBI do to correct the situation?
- Ans. The central bank can sell its reserves of US dollars in the money market to reduce the pressure of demand for dollars. In case supply aligns with demand, the price of dollar will fall in terms of the Indian rupee.
2. If US dollar becomes costlier in terms of the Indian rupee, it is good as well as bad for the domestic growth. How?
- Ans. (i) It is good because purchasing power of US dollar in the Indian market increases. Accordingly, demand for the domestic goods is expected to rise. Implying a rise in exports and therefore, a rise in GDP.

(ii) It is **bad** because imports of essential capital goods (critical for growth) become expensive. It inflates CAD (current account deficit) and borrowings from rest of the world.

3. Distinguish between devaluation and depreciation of domestic currency.

Ans. Devaluation is the fall in the value of domestic currency in relation to foreign currency as planned by the government in a situation when exchange rate is not determined by the forces of supply and demand but is fixed by the government of different countries. Depreciation, on the other hand, is the fall in the value of domestic currency in relation to foreign currency in a situation when exchange rate is determined by the forces of supply and demand in the international money market. Both depreciation and devaluation result in fall in the value of domestic currency in terms of foreign currency. However, while devaluation causes a desired fall in the value of rupee (so that the exports are boosted), depreciation may cause undesired fall as well. And, in the event of an undesired fall in the value of domestic currency, import bill of the government may become enormously high, leading to a rise in current account deficit (CAD) and fiscal deficit to unmanageable limits.

4. How is appreciation of domestic currency likely to affect exports and imports of domestic economy?

Ans. Appreciation of the domestic currency implies that the value of domestic currency rises in relation to a foreign currency (say dollar). Now, less rupees are required to buy a dollar. This means that a dollar can buy lesser amount of goods in the domestic economy. Accordingly, exports of the country are likely to fall.

Similarly, less rupees are now required to buy goods worth one dollar in the US market. Accordingly, imports are likely to rise.

5. When foreign exchange rate in a country is on the rise, what impact is it likely to have on exports and imports and how?

Ans. A unit of the domestic currency will now **buy** less goods from rest of the world while a unit of foreign currency can now buy more goods in the domestic economy. Goods produced in the domestic economy become cheaper to the buyers **abroad** while foreign goods become relatively expensive to the domestic buyers. As a result, exports are expected to rise and imports are expected to fall.

6. How is depreciation of Indian rupee likely to affect Indian exports? Explain.

Ans. Depreciation of the domestic currency implies that the domestic currency (rupee) loses its value in relation to a foreign currency (say US dollar). Now, more rupees are required to buy a dollar, or a dollar can now buy more goods in the domestic economy. Accordingly, exports are expected to rise.

4. Analysis & Evaluation

1. Will you always appreciate a rise in exchange rate as a means to boost our exports?

Ans. No. Because a rise in exchange rate may not always lead to a rise in our export earnings. A rise in exchange rate is beneficial only when elasticity of demand for our exports is greater than unity. Because, it is only then that the total expenditure on our exports will rise in response to a fall in prices of domestic goods in terms of the foreign currency. In other words, a fall in prices of domestic goods (in terms of the foreign currency) yields greater revenue only when the elasticity of demand for our exports is greater than unity.

2. Comment on the statement that increase in interest rate in the domestic economy leads to an appreciation of domestic currency.

Ans. The statement is true. In case domestic interest rate rises and is higher than the interest rate in rest of the world, the foreigners will be induced to shift their funds to the domestic economy. Greater flow of funds from abroad will raise the demand for Indian currency. (Because, foreign currency must be converted into Indian currency for purpose of investment.) Implying a rise in demand for the Indian currency, leading to its appreciation in relation to the foreign currency.

3. How does decrease in FDI in India act as a supply shock of foreign exchange?

Ans. Decrease in FDI leads to a decrease in supply of foreign exchange, for reasons other than change in exchange rate. It is a supply shock that causes a backward shift of supply curve of foreign exchange for the Indian economy. Consequently, equilibrium exchange rate will rise. More rupees are to be paid for buying a unit of foreign currency.

4. Can you think of a situation when CAD (Current Account Deficit) in India has improved even when exchange rate has remained almost constant?

Ans. It is in the latter half of the year 2014 that CAD in India has improved even when exchange rate (US \$ in relation to Indian rupee) has remained almost constant. It has happened in the wake of a drastic fall in the price of crude oil in the international market: the price slipping from US \$ 110 to US \$ 45 per barrel.

5. How do the deficit BoP and surplus BoP impact the exchange rate?

Ans. (i) **Deficit Balance of Payments:** If the balance of payments of a country shows deficit, demand for foreign currency will increase. Accordingly, exchange rate is expected to rise. Domestic currency will depreciate in relation to foreign currency.

(ii) **Surplus Balance of Payments:** If the balance of payments of a country shows surplus, availability of foreign currency will increase. Accordingly, exchange rate is expected to fall. Domestic currency will appreciate in relation to foreign currency.

5. CBSE Questions—Past 5 years (With Answers or Reference to the Text for Answers)

1. Other things remaining unchanged, when in a country the price of foreign currency rises, national income is: (choose the correct alternative) [CBSE Delhi 2015]

- (a) likely to rise
(b) likely to fall
(c) likely to rise and fall both
(d) not affected
[(d)]

Note: Rise or fall in the price of foreign currency has **no direct impact** on national income of a country. Exchange rate (price of foreign currency) changes everyday and several times in a day. It does not mean that national income would change accordingly.

Indirect Impact: When exchange rate rises, foreign currency becomes expensive. Imports tend to fall and exports tend to rise. Accordingly, AD tends to rise. A rise in AD may lead to a rise in national income.]

2. Other things remaining the same, when in a country the market price of foreign currency falls, national income is likely: (choose the correct alternative) [CBSE (AI) 2015]

- (a) to rise
(b) to fall
(c) to rise or to fall
(d) to remain unaffected
[(d)]

Note: Rise or fall in the price of foreign currency has **no direct impact** on national income of a country. Exchange rate (price of foreign currency) changes everyday and several times in a day. It does not mean that national income would change accordingly.

Indirect Impact: When exchange rate falls, foreign currency becomes cheaper. Imports tend to rise and exports tend to fall. Accordingly, AD tends to fall. A fall in AD may lead to a fall in national income.]

3. What are fixed and flexible exchange rates? [CBSE (AI) 2015]
[Page 334, 341]
4. Explain the meaning of managed floating exchange rate. [CBSE (AI) 2015]
Or
Discuss briefly the concept of managed floating system of foreign exchange rate determination.
[Page 345, 346] [CBSE 2019 (58/2/1)]
5. Other things remaining the same, when foreign currency becomes cheaper, the effect on national income is likely to be: (choose the correct alternative) [CBSE (F) 2015]
(a) positive (b) negative
(c) positive and negative both (d) no effect
[(d); See Note, Q. 2 above.]
6. Why does the demand for foreign currency fall and supply rises when its price rises? Explain.
[Page 340, 341] [CBSE Delhi 2017]
7. What is meant by depreciation of domestic currency? [CBSE (AI) 2017]
[Page 342]
8. Explain the distinction between the flexible exchange rate and the managed floating exchange rate.
[Page 334, 345, 346] [CBSE (F) 2017]
9. Explain by giving examples, the distinction between depreciation and devaluation of domestic currency.
[Page 342] [CBSE (F) 2017]
10. Discuss briefly the meaning of:
(a) Fixed exchange rate.
(b) Flexible exchange rate.
(c) Managed floating exchange rate. [CBSE 2018]
[Page 334, 341, 345, 346]
11. "Indian Rupee (₹) plunged to all time low of ₹ 74.48 against the US Dollar (\$)."
—The Economic Times
In the light of the above report, discuss the impact of the situation on Indian imports.
[Page 337, 340] [CBSE 2019 (58/1/1)]
12. (a) Distinguish between appreciation of home currency and depreciation of home currency.
(b) State any one source of supply of foreign currency for a country. [CBSE 2019 (58/2/2)]
[Page 340, 347, 348]
13. Discuss briefly the concept of flexible exchange rate system of foreign exchange rate determination.
[Page 334–336] [CBSE 2019 (58/2/3)]
14. Name any two sources of demand for foreign exchange by households in an economy.
[Page 346, 347] [CBSE 2019 (58/3/1)]
15. In recent times the Indian Rupee (₹) depreciated to an all time low against the US dollar (\$). Discuss its impact on India's imports.
[Page 337, 340] [CBSE 2019 (58/3/1)]
16. State any two factors responsible for inflow of foreign currency. [CBSE 2019 (58/4/1)]
[Page 347, 348]

17. Distinguish between depreciation of a currency and devaluation of a currency. [CBSE 2019 (58/4/1)]
[Page 342]
18. State the meaning of fixed foreign exchange rate. [CBSE 2019 (58/5/1)]
[Page 341]

6. NCERT Questions (With Hints to Answers)

1. Distinguish between the nominal exchange rate and the real exchange rate. If you were to decide whether to buy domestic goods or foreign goods, which rate would be more relevant? Explain.
[Hint: Nominal exchange rate is that type of exchange rate which does not account for changes in the price level while measuring average strength of one currency in relation to the others. Real exchange rate is that type of exchange rate which accounts for changes in the price level across different countries of the world. It is an exchange rate that is based upon constant prices. To buy domestic goods or foreign goods at a point of time, nominal exchange rate is more relevant.]
2. How is the exchange rate determined under a flexible exchange rate regime?
[Hint: Flexible rate of exchange is determined by the forces of supply and demand in the international money market. While demand for foreign exchange is inversely related to its own price, supply of foreign exchange is positively related to its own price.]
3. Differentiate between devaluation and depreciation.
[Hint: Devaluation is the fall in the value of domestic currency in relation to foreign currency as planned by the government in a situation when exchange rate is not determined by the forces of supply and demand but is fixed by the government of different countries. Depreciation, on the other hand, is the fall in the value of domestic currency in relation to foreign currency in a situation when exchange rate is determined by the forces of supply and demand in the international money market.]
4. Would the central bank need to intervene in a managed floating system? Explain why.
[Hint: Managed floating refers to a situation when the central bank intervenes to manage the exchange rate within the desired range. Thus, the RBI would sell dollars in the international money market to raise its supply and lower its exchange value. This would lead to revaluation of the Indian currency. On the other hand, Indian currency would be devalued when the RBI buys US dollars to raise its demand (and thereby its exchange value) in the international money market.]
5. Are the concepts of demand for domestic goods and domestic demand for goods the same?
[Hint: 'Demand for domestic goods' and 'domestic demand for goods' are different concepts. Demand for domestic goods includes demand for goods by the domestic consumers and by the foreigners. Domestic demand for goods includes (i) demand for goods produced domestically, and (ii) demand for goods produced abroad.
Demand for domestic goods = $C + I + G + X - M$.
Domestic demand for goods = $C + I + G$.
So that, Demand for domestic goods = Domestic demand for goods + $(X - M)$.]

7. Miscellaneous Questions and Reference to the Text for Answers

A. Questions of 3 & 4 marks each

1. What is meant by foreign exchange rate? Give three reasons why people desire to hold foreign exchange. [Page 333, 346, 347]
2. How is foreign exchange rate determined? Use diagram. [Page 335, 336]

3. What is Bretton Woods System of exchange? [Page 344, 345]
4. Write a short note on flexible exchange rate system. [Page 334]
5. When demand for a foreign currency increases, rate of exchange falls. Explain, how? [Page 334, 335]
6. State four sources each of demand for and supply of foreign exchange.

Or

- Give three sources each of demand for and supply of foreign exchange. [Page 346–348]
7. Why does a rise in foreign exchange rate cause a rise in its supply? [Page 340, 341]
 8. Define foreign exchange rate. Why does the demand for foreign exchange rise when its price falls? [Page 333, 348]
 9. Explain the effects of an increase in supply of foreign currency on exchange rate? [Page 338, 339]
 10. Explain the principal characteristics of forward market in foreign exchange. [Page 350]
 11. State the difference between spot exchange rate and forward exchange rate. [Page 350]

B. Questions of 6 marks each

1. What do you mean by exchange rate? Explain the main factors which determine exchange rate. [Page 333, 346–348]
2. How is equilibrium rate of exchange determined? Explain with the help of a diagram. [Page 335, 336]
3. How is Bretton Woods System different from Gold Standard System of exchange rate? [Page 344, 345]
4. Differentiate between spot market and forward market. [Page 350]
5. What determines the supply of foreign exchange in a country? [Page 347, 348]
6. What is parity value?

[Hint: In the context of exchange rate in foreign exchange market, parity value refers to the value of one currency in terms of the other for a given basket of goods and services. If a US dollar buys 50 times the goods and services in India, compared to a rupee, the parity value of a dollar should be 50 : 1. Accordingly, the exchange rate between rupee and a dollar ought to be ₹ 50 : \$ 1. Any change in the parity value would imply a corresponding change in the exchange rate.]

7. Explain the concept of hedging in the context of international money market.

[Hint: Hedging refers to 'risk management'. It is an important concept in the context of forward market for foreign exchange. In such a market, contracts (for the supply and demand) of foreign exchange are made at one point of time and these are to be honoured sometimes in the future. While making such contracts, the buyers are managing the risk of rise in price of foreign exchange, while the sellers are managing the risk of fall in the price of foreign exchange in the near future. This is what hedging means. It is guarding against the risk of change in exchange rate in the near future.]

DOs and DON'Ts

1. **You must understand it:** If a dollar becomes expensive in terms of rupees, it should not be taken as a situation when the Indian Government has to print more notes to buy the dollars. Instead, it is a situation when a dollar can buy more goods and services in the Indian market. Thus, what we in fact lose is not more rupees for a dollar, but more goods and services for a dollar.
2. **Hedging** is done when we lock the exchange rate for future transactions. But this should not be interpreted as a means to make gains. Hedging is only a means to protect us from the risk of a possible rise in exchange rate in the near future. But, the exchange rate may even fall. In such a situation, hedging (at the current rate of exchange) may cause losses.
3. Equilibrium exchange rate is achieved when supply of a foreign currency is equal to demand for a foreign currency. But, it is important to remember that the equilibrium exchange rate (as determined by the free play of supply-demand forces) becomes redundant (practically irrelevant) because of managed floating or dirty floating. Dirty floating aims at influencing the supply-demand forces. To that extent, market rate of exchange fails to be an equilibrium rate of exchange. The divergence between the market rate of exchange and equilibrium rate of exchange implies that exports and imports in the global economy are not entirely determined by the free play of the market forces.



• Key Merits and Demerits of Fixed and Flexible System of Exchange Rate

Fixed Exchange Rate

Merits

- (i) **Market Stability:** Stability of the market is key merit of fixed exchange rate. It promotes investment across nations.
- (ii) **Stable Macroeconomic Policies:** Given the fixed exchange rate, the central bank can frame its monetary policy and the government can frame its fiscal policy, independent of the external shocks relating to fluctuations in exchange rate.
- (iii) **Devaluation—A Key Tool to expand Foreign Market for the Domestic Producers:** Fixed exchange rate system allows devaluation of the currency. It is a planned fall in the value of the domestic currency. It helps expand foreign market for the domestic producers.

Demerits

- (i) **Reserves of Forex:** To maintain the rate of exchange at the desired level, the government need to keep a large stock of foreign exchange. This is the principal demerit of the fixed exchange rate system.
- (ii) **Inefficient Allocation of Resources:** Exchange rate fixed by the government often deviates from the equilibrium exchange rate (in a free market economy). To that extent, allocation of resources may not be efficient.
- (iii) **Small Size of Forex Market:** When the rate of exchange is fixed, foreign exchange does not emerge as a trading commodity. Accordingly, size of the forex market remains small. This acts as a hurdle in the global economic growth.

(iv) Speculative Attack on a Currency: There are speculative attacks on a currency. Thus, if rupee is expected to be devalued in relation to US dollar, the investors would start buying dollars (to be converted into rupees after devaluation). Such speculative attacks often force the government to reset the rate of exchange.

Flexible Exchange Rate

Merits:

- (i) Large Reserves of Forex not required:** Flexible system of exchange rate does not require large reserves of foreign exchange with the government. Market forces of supply and demand automatically drive the rate of exchange to the point of equilibrium.
- (ii) Efficient Allocation of Resources:** Efficient allocation of resources is achieved, as the system is ruled by the free play of the market forces.
- (iii) Large Size of the Forex Market:** Since foreign exchange itself becomes a trading commodity, the size of forex market tends to be large. This induces economic growth across all parts of the world.
- (iv) International Mobility of Liquidity:** Since large reserves of forex are not required, flexible exchange rate tends to promote international mobility of liquidity. This is good for the less developed countries (like India), where foreign investment is a significant determinant of GDP growth.

Demerits

- (i) Marginalisation of Weak Currencies:** Flexible exchange rate system leads to marginalisation of weak currencies in the international money market. Weak currencies (of small economies) often suffer huge depreciation in relation to strong currencies (of big economies). Accordingly, gains of international trade accrue more to the large economies than the small economies.
- (ii) Uncertainty of the Market:** There is a high degree of uncertainty in the market. Owing to the frequently changing rate of exchange, it becomes difficult to formulate a stable monetary policy in the domestic economy.
- (iii) External Shocks:** Flexible exchange rate system exposes the domestic economy to external shocks. **Example:** As and when US dollar appreciates (in relation to Indian rupee), the burden of import payments tends to rise, even when the international price of the goods is constant. Because payments are to be made in terms of dollars, and (after a rise in exchange rate) larger amount of the Indian currency is needed to pay the same amount of dollars.



BALANCE OF PAYMENTS

TO
DO

- *BoP (or BoP Accounts): Meaning*
- *Components/Structure of BoP Account:
Current Account, Capital Account and Official Reserves Account*
- *Equilibrium and Disequilibrium in BoP—BoP Deficit*

I. BOP (OR BOP ACCOUNTS): MEANING

Balance of payments (BoP) is a statement of accounts showing all monetary transactions (or economic transactions) of a country with the rest of the world during a period of time, generally one year. These transactions may be made by the individuals, firms and the government of a country. Broadly, the monetary transactions relate to: (i) export and import of goods. In the BoP language, it is called 'merchandise' or 'visible trade' (simply because goods are visible when they cross the borders. Goods can be seen), (ii) export and import of services. It is called 'invisible trade' (simply because services are not visible when they cross the borders. Services cannot be seen), (iii) international sale and purchase of financial assets. These assets include stocks and bonds, and (iv) international sale and purchase of real assets. Real assets are like plant and machinery.

There is a flow of foreign exchange into the country when we export goods and services or when the foreigners invest in our financial or real assets. Likewise, there is a flow of foreign exchange from our country to rest of the world when we import goods and services or when our residents invest in the financial or real assets of other countries. BoP accounts record all receipts and payments of foreign exchange. Receipts are recorded as credit items, while payments are recorded as debit items. The BoP accounts, thus prepared, reflect performance of our economy in relation to rest of the world.

2. COMPONENTS OF BOP ACCOUNT

BoP accounts include: (i) current account, (ii) capital account, and (iii) official reserves account. Following is their brief description:

Current Account

Note

Only such goods are treated as 'export' which are tangible and can be seen crossing the borders as merchandise. Goods bought by the foreign tourists in the domestic markets are not treated as 'export'. Likewise goods purchased by the domestic tourists in rest of the world are not treated as 'import'.

Current account records receipt and payment of foreign exchange on account of such transactions which do not impact asset-liability status of a country in relation to rest of the world. Liabilities or assets of a country (in relation to rest of the world) are neither raised nor reduced. In other words, **current account transactions do not give rise to 'future claims'**.

Components

Principal items (components) of current account BoP are as under:

(i) Export and Import of Goods

Export and import of goods is treated as 'merchandise' or 'visible trade'. **This is a visible trade because goods are tangible (material) and therefore, can be seen while crossing the borders.** **Example:** Export or import of cellular phones can be seen while crossing the borders.

(ii) Export and Import of Services

Export and import of services is treated as 'invisible trade'. This is because services are not tangible (material) and therefore, cannot be seen while crossing the borders. **Example:** Insurance services being rendered across the borders cannot be seen as crossing the borders.

Services are further classified as: **factor services** and **non-factor services**.

(a) Factor Services: Factor services are those which lead to factor payments or factor income. In the BoP accounts, monetary transactions related to factor incomes are split as: (i) investment income, and (ii) compensation of employees. Investment income includes income on account of rent, interest and profit.

In BoP Accounts:

$$\begin{aligned} \text{Factor Incomes} &= \text{Compensation of employees} \\ &+ \\ &\text{Investment income (= rent + interest + profit)} \end{aligned}$$

(b) Non-factor Services: Non-factor services include all services, other than factor services. Insurance and banking services may be cited as examples. Monetary transactions related to non-factor services are recorded as receipts when these services are exported, and as payments when these services are imported.

(iii) Current Transfers

Current transfers refer to 'transfers for free'. These are unilateral transfers made by way of gifts, grants and remittances (by the residents settled abroad). In the BoP accounts, current transfers are treated as an element of 'invisibles'.

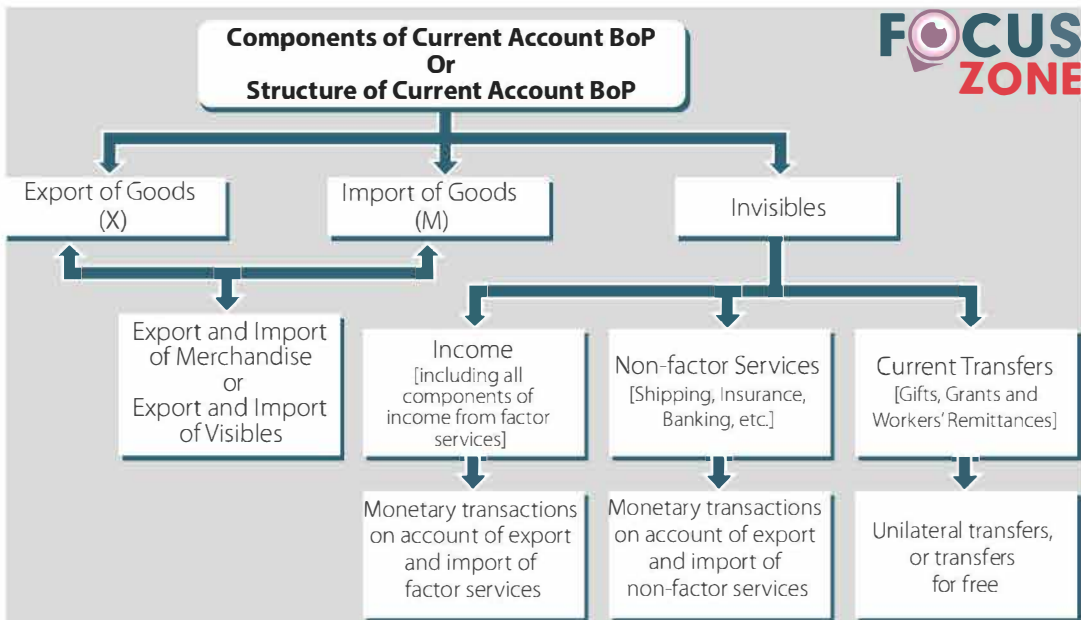
Important Observations

In the BoP accounts, current transfers are treated as an element of invisibles. So that, invisibles in the BoP accounts include: (i) monetary transactions related to export and import of factor services, (ii) monetary transactions related to export and import of non-factor services, and (iii) monetary transactions related to current transfers.

Invisibles in BoP Accounts

- | | | |
|---|---|--|
| <p>(1) Monetary transactions related to export and import of services</p> <p style="text-align: center;">↓</p> <p>(i) Monetary transactions related to export and import of factor services (briefly called 'income')</p> <p style="text-align: center;">+</p> <p>(ii) Monetary transactions related to export and import of non-factor services</p> | + | <p>(2) Monetary transactions related to current transfers</p> |
|---|---|--|

Following is a flow chart presentation of the components of current account BoP:



[Note: Current account records all payments to rest of the world as debit (indicated by the '-' sign) and all receipts from rest of the world as credit (indicated by the '+' sign). Net receipts refer to the difference between receipts and payments.]

Estimation of Balance Related to Current Account

'Balance' relating to current account BoP is estimated in terms of four parameters as under:

(i) **Trade Balance/Merchandise Balance** = $X - M$.

Trade balance is reflected as:

(a) Trade Deficit when $M > X$, and

(b) Trade Surplus when $X > M$.

(ii) **Goods and Services Balance**

$$= \left[\begin{array}{c} \text{Export of Goods} \\ + \\ \text{Export of} \\ \text{non-factor services} \end{array} \right] - \left[\begin{array}{c} \text{Import of Goods} \\ + \\ \text{Import of} \\ \text{non-factor services} \end{array} \right]$$

= Trade balance + Balance on account of non-factor services

(iii) **Invisibles Balance**

= Balance on non-factor services

+ Balance on income (balance on factor services)

+ Balance on current transfers

(iv) **Current Account Balance**

= Trade Balance

+ Invisibles Balance

It must be clearly understood that:

While estimating trade balance, we consider goods only.

While estimating goods and services balance, we consider (i) goods, and (ii) non-factor services only.

While estimating invisibles balance, we consider (i) balance relating to non-factor services, (ii) balance relating to factor services (called balance on income), and (iii) balance on current transfers.

Table 1 shows actual estimation of Balance relating to Current Account BoP.

Table 1. Estimation of Balance related to Current Account BoP (based on data for the period 2017-18, Economic Survey, 2018-19)

Items	US million \$
Exports	3,08,970
Imports	4,69,006
Invisibles (net)	1,11,319
(a) Non-factor Services	77,562
(b) Income	-28,681
(c) Transfers	62,438

1. Trade Balance

$$\begin{aligned} &= X - M \\ &= 3,08,970 - 4,69,006 \\ &= (-) 1,60,036 \text{ Trade Deficit} \end{aligned}$$

2. Goods and Services Balance

$$\begin{aligned} &= \text{Trade balance} + \text{Balance on account of non-factor services} \\ &= (-) 1,60,036 + 77,562 \\ &= (-) 82,474 \end{aligned}$$

3. Invisibles Balance

$$\begin{aligned} &= \text{Balance on non-factor services} + \text{Balance on income} \\ &\quad (\text{factor services}) + \text{Balance on transfers} \\ &= 77,562 - 28,681 + 62,438 \\ &= 1,11,319 \end{aligned}$$

4. Current Account Balance

$$\begin{aligned} &= \text{Trade balance} + \text{Invisibles balance (= Net of invisibles)} \\ &= (-) 1,60,036 + 1,11,319 \\ &= (-) 48,717 \end{aligned}$$

- [**Note:** (i) Exports of goods and services are recorded as positive (+) items as these cause flow of foreign exchange into the domestic economy.
(ii) Imports of goods and services are recorded as negative (-) items as these cause flow of foreign exchange out of the domestic economy.
(iii) All receipts on account of transfers are recorded as positive (+) items, while payments are recorded as negative (-) items.]



Q. 1. Name three such items which are not included in balance of trade.

Ans. Three items which are not included in balance of trade are:

- (i) Export and import of services such as of shipping, insurance and banking.
- (ii) Interest and dividend payments between the countries.
- (iii) Expenditure by the tourists.

Q. 2. What is the difference between balance of trade and current account balance?

Ans. Balance of trade refers to the balance occurring on account of export and import of visible items (goods only).

Current account balance includes the balance of trade as well as balance on invisibles.

Capital Account

Capital account records receipts and payments of such transactions which cause an impact on asset-liability status of a country in relation to rest of the world. Liabilities or assets of a country (in relation to rest of the world) are either raised or reduced. In other words, **capital account transactions lead to future claims.**

Did You Know it?

Export and import of capital goods (plant and machinery) is NOT included in the capital account. Export and import of all types of goods (consumer goods or capital goods) is recorded as 'merchandise' or 'visible trade' in the current account of BoP.

Confusion is sometimes raised with regard to the export and import of capital goods, like plant and machinery. **Should such transactions be included in the capital account?** Answer is 'No'. Let it be absolutely clear that the export and import of all types of goods (consumer goods or capital goods) is recorded as 'merchandise' or 'visible trade' in the current account of BoP. Thus, export and import of capital goods has nothing to do with capital account of BoP.

Components

Two principal components of capital account are:

- (1) Borrowing, and
- (2) Foreign investment.

(1) Borrowing: Borrowing is split as:

- (i) External commercial borrowing, and
- (ii) External assistance.

The principal difference between the two is that while external commercial borrowing is available at the market rate of interest (in the international money market), external assistance is available at the concessional rate of interest.

Borrowing from rest of the world raises our liability to rest of the world. But, note it carefully, that it is recorded as a 'credit item' in the capital account of BoP. The reason is this: all receipts of foreign exchange are recorded as credit items in the BoP accounts. Thus, borrowing of rest of the world (or lending to rest of the world) would be recorded as 'debit item' in the capital account, as it causes flow of foreign exchange from our country to rest of the world.

(2) Foreign Investment: Foreign investment is split as:

- (i) Portfolio Investment, and
- (ii) Foreign Direct Investment (FDI).

Portfolio Investment basically refers to foreign institutional investment (FII). It is investment by rest of the world in shares and bonds of the domestic companies.

Foreign Direct Investment relates to ownership of enterprises (in the domestic economy) by rest of the world. **Example:** Walmart stores in India.

Other Components of Capital Account

Besides, borrowing and investment (which are the principal components of capital account) there are other components, as under:

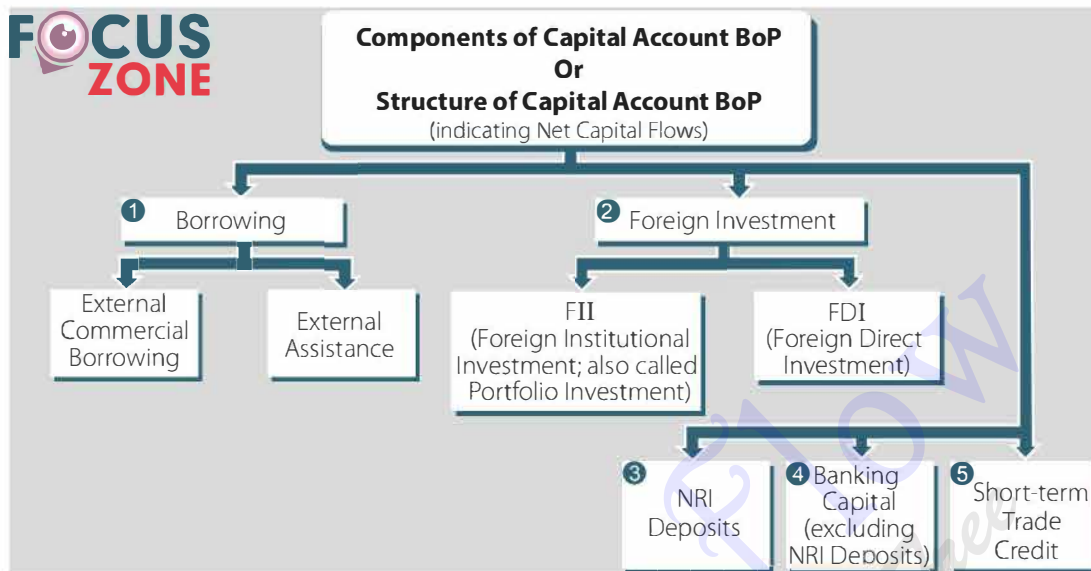
- (3) **NRI Deposits:** In the context of the Indian economy, 'NRI deposits' is also a significant constituent of capital account. However, here a note of caution is essential:

Only such NRI deposits are to be considered (as a component of capital account) which are made in the domestic economy. Thus, non-resident Indians should make deposits in India.

It also needs to be noted that money sent by the NRIs to their families in India is to be treated as 'current transfers', and are to be recorded in current account of BoP. Only deposits held by NRIs in the domestic economy are to be considered as a component of capital account.

- (4) **Banking Capital (Other than NRI Deposits):** Banking capital is yet another component of capital account. It refers to 'foreign assets' held by the commercial banks. Owing to drawdown of foreign assets of the commercial banks (the commercial banks converting their foreign assets into liquidity), inflow of foreign exchange into the domestic economy tends to rise.
- (5) **Short-term Trade Credit:** In the context of the Indian BoP, short-term trade credit is another important component of capital account. It arises on account of purchases in the international market without making immediate payment. Repayment of short-term debt to rest of the world leads to outflow of foreign exchange to rest of the world. Accordingly, it is recorded in the capital account with a negative sign. Inward flow of foreign exchange (from rest of the world), on the other hand, is recorded with a positive sign.

Following is a flow chart presentation of the components of capital account BoP:



- [**Note:** (i) Similar to current account, capital account records all payments to rest of the world as debit, indicated by the '-' sign and all receipts from rest of the world as credit, indicated by the '+' sign.
- (ii) Often, flows in the capital account are shown as 'Net Capital Flows'. Net flows reflect the balance on account of capital account transactions, which may be positive or negative. Positive balance indicates that the inward flow of foreign exchange is greater than the outward flow, while the negative balance indicates just the opposite.]

Estimation of Balance Related to Capital Account

Balance of the capital account is estimated as the net of positive and negative values. Table 2 shows the actual estimation of Capital Account Balance in India.

Table 2. Estimation of Capital Account Balance (based on data for the period 2017-18, Economic Survey, 2018-19)

Items	US million \$
External Assistance (net)	2,944
External Commercial Borrowing (net)	-183
Short-term Credit	13,900
Banking Capital (net) (inclusive of NRI Deposits)	16,190
Foreign Investment (net)	52,401
Other Flows (net)	6,138
Capital Account Balance	91,390

accounts, wherein increase/decrease in official reserves is shown as a part of the capital account BoP. Accordingly, BoP shows a perfect balance, or the balance of BoP accounts is equal to 0 (zero). Table 3 is based on the actual data relating to some major items of India's BoP.

Table 3. Major Items of India's BoP, showing how Balance of Payments always Balances (2017-18, Economic Survey, 2018-19)

Items	US million \$
1. Exports	3,08,970
2. Imports	4,69,006
3. Trade Balance	(-) 1,60,036
4. Invisibles (net)	1,11,319
5. Current Account Balance	(-) 48,717
6. Capital Account Balance	91,390
7. Errors and Omissions	902
8. Overall Balance	43,574
9. *Official Reserves [Increase (-)/Decrease (+)]	(-) 43,574

*Item 9 in BoP accounts always shows **change** in official reserves (increase or decrease). It never shows total official reserves. In the present table, there is an increase in official reserves as indicated by a '-' sign. To repeat, increase in official reserves is indicated by a '-' sign, while the decrease is indicated by a '+' sign. This is only then that the BoP account would reflect a perfect balance (= 0).

In case, Official Reserves are not shown as a part of the capital account, the Official Reserves Account is separately presented and classified as "Below the Line". In such situations, the current and capital accounts together may show a surplus or deficit BoP.

Thus:

BoP Surplus = Current Account Surplus + Capital Account Surplus
(When Official Reserves Account is not a part of capital account)

BoP Deficit = Current Account Deficit + Capital Account Deficit
(When Official Reserves Account is not a part of capital account)

BoP always balances when Official Reserves Account is a part of capital account, and therefore: Current account balance + Capital account balance = Zero.

3. EQUILIBRIUM AND DISEQUILIBRIUM IN BOP

BoP equilibrium is struck when: $\text{Current account balance} + \text{Capital account balance} + \text{Errors and omissions} = \text{Zero}$, and there is no movement (increase or decrease) of official reserves of the central bank. In case we ignore the element of errors and omissions, we can say that the BoP equilibrium is struck when:

$\text{Current account balance} + \text{Capital account balance} = \text{Zero}$, and there is no movement (increase/decrease) of the official reserves.

Or

We can say that BoP is in a state of equilibrium when any negative balance in the current account is equally counterbalanced by a positive balance in the capital account, and there is no change in official reserves of the central bank.

Thus, $\text{in a state of BoP equilibrium inward flow of foreign exchange (on account of current account and capital account transactions) is exactly equal to the outward flow of foreign exchange, and there is no change in official reserves (of foreign exchange and gold) with the central bank of the country.}$

A disequilibrium in BoP occurs when the sum total of current account balance and capital account balance is not zero; instead it is either some positive number or some negative number. In case the sum total of current account balance and capital account balance is some positive number, it indicates BoP Surplus. On the other hand, if the sum total of current account balance and capital account balance is some negative number, it indicates BoP Deficit. Thus, we have:

(i) BoP Disequilibrium when:

Current account balance + Capital account balance is NOT equal to zero, and it causes the movement of official reserves.

(ii) BoP Surplus when:

Current account balance + Capital account balance is some positive number, pointing to net inward flow of foreign exchange, and leading to an increase in official reserves.

(iii) BoP Deficit when:

Current account balance + Capital account balance is some negative number, pointing to net outward flow of foreign exchange, and leading to a decrease in official reserves.


Autonomous and Accommodating Items of BoP Account

BoP transactions or items in BoP account are often classified as autonomous items and accommodating items. The difference is as under:

Autonomous items refer to such BoP transactions which are undertaken with a view to making profits. It is due to these transactions that there is a BoP deficit/surplus. Accommodating items, on the other hand, refer to such transactions which are undertaken by the central bank of a country with a view to correcting BoP imbalance and restoring BoP equilibrium. **It is important to note that accommodating items do not cause any movement of goods and services across the borders. These relate only to the movement of official reserves with a view to correcting BoP imbalances.**

Often the accommodating items are not reflected as an element of BoP accounts. These are therefore called 'below the line' items, while autonomous items are called 'above the line' items. Thus, **when BoP deficit/surplus is estimated, it is with reference to only the autonomous items or autonomous transactions of BoP.**

Autonomous Items and Accommodating Items—The Difference

	Autonomous Items	Accommodating Items
	<p>(i) Autonomous items refer to such BoP transactions which are undertaken for considerations of profit.</p> <p>(ii) Autonomous items are the cause of BoP imbalance (BoP surplus or BoP deficit).</p> <p>(iii) Autonomous items may involve the movement of goods across the borders (like export and import of consumer goods or capital goods).</p> <p>(iv) Autonomous items are classified as 'above the line' items of BoP.</p>	<p>(i) Accommodating items are free from the considerations of profit.</p> <p>(ii) Accommodating items are meant to restore BoP balance. or Accommodating items are meant to correct BoP imbalance.</p> <p>(iii) Accommodating items do not involve the movement of goods across the borders. These items only involve the movement of official reserves with the RBI.</p> <p>(iv) Accommodating items are classified as 'below the line' items of BoP.</p>

Significance of BoP Accounts (or BoP Data)

Having understood the concept and composition of BoP accounts, we can now write the significance of these accounts, in terms of the following observations:

- (1) **Financial Status of the Domestic Economy:** BoP accounts reveal financial status of the domestic economy in relation to rest of the world. Borrowing reveals dependence on rest of the world. It points to backwardness of the domestic economy.
- (2) **Net Factor Income from Abroad:** BoP data offers information on net factor income from abroad. It is an important component of national income.
- (3) **X – M (A Component of AD):** BoP accounts show exports and imports of a country. We know, net of exports (X – M) is an important component of AD (aggregate demand in the domestic economy). Rise in 'X – M' leads to a rise in AD. It directly impacts the level of output and employment in the domestic economy (particularly when there is unemployment due to deficiency of AD).
- (4) **Market Potential:** BoP accounts reflect market potential in the domestic economy. It is reflected by the size of foreign investment. Larger size of foreign investment points to high market potential in the economy.
- (5) **Monetary and Fiscal Policies:** BoP performance of a country impacts its monetary and fiscal policies. In the event of greater flow of foreign exchange from rest of the world, there is a pressure of demand for the domestic currency. The RBI has to account for it in the formulation of its monetary policy. Likewise, poor-flow of foreign investment in the domestic economy, may point to hard tax laws in the domestic economy. The government must account for it in the formulation of its fiscal policy.

Briefly, BoP accounts (or BoP data) reveals financial strength of a country in relation to rest of the world. For less developed countries like India, it highlights the need for borrowing from rest of the world as well as the need for foreign investment.

SOME VITAL DIFFERENCES

1. Current Account BoP and Capital Account BoP

Current Account BoP	Capital Account BoP
<p>(1) Concept Current account records receipts and payments of foreign exchange on account of such transactions which do not impact asset-liability status of a country in relation to rest of the world. Thus, current account transactions do not give rise to future claims.</p> <p>(2) Composition Current account transactions include:</p> <ul style="list-style-type: none"> (i) Export and import of goods (called visible trade), (ii) Export and import of services (called invisible trade), (iii) Current transfers. <p>(3) Significance</p> <ul style="list-style-type: none"> (i) Current account transactions reveal $X - M$, an important component of AD in the domestic economy. (ii) Current account transactions reveal net factor income from abroad, an important component of national income. (iii) Because of their direct impact on AD, current account transactions impact the level of output and employment in the domestic economy. 	<p>Capital account records receipts and payments of foreign exchange on account of such transactions which impact asset-liability status of a country in relation to rest of the world. Thus, capital account transactions give rise to future claims.</p> <p>Capital account transactions include:</p> <ul style="list-style-type: none"> (i) Borrowing, (ii) Foreign Investment, (iii) NRI Deposits, (iv) Banking Capital, (v) Short-term Debt. <p style="text-align: right;">} Principal components } Other components</p> <ul style="list-style-type: none"> (i) Capital account transactions reveal borrowings from rest of the world. It is a reflection of backwardness of the domestic economy. (ii) Capital account transactions show foreign investment in the domestic economy. While it reveals market potential of the domestic economy, it also reveals dependence on rest of the world for our GDP growth. (iii) Capital account transactions do not cause any direct impact on the level of output and employment in the economy. These transactions just reveal asset-liability status of the economy in relation to rest of the world.

2. Balance of Trade and Current Account Balance of Payments

Balance of Trade	Current Account Balance of Payments
<ul style="list-style-type: none"> (i) Balance of trade is that account which records imports and exports of goods only. (ii) It is the difference between visible exports and visible imports. (iii) It involves international transactions relating to physical goods which can be seen crossing the borders. 	<ul style="list-style-type: none"> (i) Current account balance of payments is that account which records (a) import and export of goods, (b) import and export of services, and (c) current transfers. (ii) It is the sum total of trade balance and invisibles balance. Invisibles balance includes (a) balance on non-factor services, (b) balance on income arising out of factor services, and (c) balance on transfers. (iii) It involves international transactions relating to physical goods (which can be seen crossing the borders) as well as transactions relating to services which cannot be seen crossing the borders.

3.

Balance of Payments and Balance of Trade

Balance of Payments	Balance of Trade
(i) Balance of payments is a summary statement of all economic transactions of a country with rest of world.	(i) Balance of trade is the difference between visible exports (X) and visible imports (M).
(ii) It records transactions related to goods as well as services.	(ii) It records transactions related to goods only
(iii) It records both current account as well as capital account transactions.	(iii) It does not record capital account transactions.
(iv) BoP always balances, provided movement of RBI reserves (official reserves) is reflected in it.	(iv) It is either positive ($X > M$) or negative ($X < M$). It balances only when $X = M$.

Power Points & Revision Window

Balance of Payments is a summary statement of all monetary (or economic) transactions between a country and rest of the world.

• **Components:** (i) Current account, (ii) Capital account, (iii) Official reserves account.

• **Economic Transactions** in BoP are broadly classified as: (i) merchandise, (ii) invisibles, and (iii) transactions leading to change in the ownership of assets vis-a-vis rest of the world.

Current Account records receipts and payments of foreign exchange of a country on account of such transactions which do not impact asset-liability status of a country in relation to rest of the world.

• **Components:** (i) Export and import of goods, (ii) Export and import of services [(a) factor services + (b) non-factor services], (iii) Current transfers.

• **Export and import of goods** is called merchandise or 'visible trade'.

• **Invisibles** include: (i) Non-factor services, (ii) Factor income, (iii) Current transfers.

• **Balance of Trade** (or Trade Balance) = Export of merchandise – Import of merchandise.

• **Current Account Balance** = Trade balance + Invisibles balance.

Capital Account records receipts and payments of foreign exchange of a country on account of such transactions which impact asset-liability status of a country in relation to rest of the world.

• **Components:** (i) Borrowing, (ii) Foreign investment, (iii) NRI deposits, (iv) Banking capital, (v) Short-term debt.

• **Borrowing** includes (i) external commercial borrowing, and (ii) external assistance.

• **Investment** includes (i) FII (Foreign Institutional Investment), and (ii) FDI (Foreign Direct Investment).

• **Capital Account Balance** shows net capital flows.

Positive Balance shows that inward flow of capital is greater than the outward flow.

Negative Balance shows that inward flow of capital is less than the outward flow.

BoP Equilibrium is a situation when current account balance and capital account balance add up to zero, and there is no movement (increase or decrease) in official reserves. Or, it is a situation when receipts and payments of a country on account of economic transactions with rest of the world are exactly equal to each other, and there is no movement of official reserves.

- **BoP Deficit** occurs when payments of a country on account of economic transactions with rest of the world exceed its receipts and consequently, there is a decrease in official reserves.
- **BoP Surplus** occurs when receipts of a country on account of economic transactions with rest of the world exceed its payments and consequently, there is increase in official reserves.

Autonomous and Accommodating Items are the BoP transactions affecting its equilibrium.

- **Autonomous Items** refer to such BoP transactions which are determined by considerations of profit. It is due to these transactions that the BoP deficit/surplus arises. These are called 'above the line items'.
- **Accommodating Items** refer to such BoP transactions which are not determined by considerations of profit. It is due to these transactions that the BoP deficit/surplus is corrected. These are called 'below the line items'.

EXERCISE

1. Objective Type Questions (Remembering & Understanding based Questions)

A. Multiple Choice Questions

Choose the correct option:

1. BoP is measured as:
 - (a) difference between visible items of exports and imports
 - (b) difference between invisible items of exports and imports
 - (c) difference between external and internal flow of gold
 - (d) difference between all receipts of foreign exchange and payments of foreign exchange
2. Balance of trade is measured as:
 - (a) difference between import and export of goods
 - (b) difference between import and export of services
 - (c) difference between import and export of capital
 - (d) difference between all exports and all imports
3. In which of the following categories are the transactions of balance of trade recorded?
 - (a) Visible items
 - (b) Invisible items
 - (c) Capital transfers
 - (d) All of these
4. Current account records transactions relating to:
 - (a) export and import of goods
 - (b) non-factor and factor income
 - (c) current transfers
 - (d) all of these

5. Which of the following items relate to BoP on capital account?
 - (a) Foreign investment
 - (b) Loans
 - (c) NRI remittances
 - (d) All of these
6. Which of the following are not included in balance of trade?
 - (a) Payment of interest and dividend
 - (b) Expenditure by the tourists
 - (c) Borrowing from rest of the world
 - (d) All of these
7. If the value of visible exports exceeds the value of visible imports, the balance relates to:
 - (a) current account BoP
 - (b) capital account BoP
 - (c) balance of trade
 - (d) none of these
8. Unilateral transfers are:
 - (a) one-sided payments
 - (b) reciprocal payments
 - (c) factor incomes
 - (d) all of these
9. Surplus in BoP occurs when:
 - (a) receipts = payments
 - (b) receipts < payments
 - (c) receipts > payments
 - (d) both (a) and (c)
10. Balance of payments is in disequilibrium when:
 - (a) current account balance + capital account balance is not equal to zero
 - (b) current account balance + capital account balance is some positive number
 - (c) current account balance + capital account balance is some negative number
 - (d) all of these
11. Disequilibrium in balance of payments leads to:
 - (a) increase in official reserves with RBI
 - (b) decrease in official reserves with RBI
 - (c) both (a) and (b)
 - (d) none of these
12. Autonomous items are related to those transactions which:
 - (a) are determined by motive of profit
 - (b) are not concerned with the equilibrium status of BoP
 - (c) both (a) and (b)
 - (d) none of these
13. Accommodating items are those items of BoP which:
 - (a) are not determined by considerations of profit
 - (b) are conditioned by the positive or negative BoP status
 - (c) lead to increase or decrease in official reserves with RBI
 - (d) all of these
14. Cause of BoP imbalance relates to:
 - (a) autonomous items
 - (b) accommodating items
 - (c) both (a) and (b)
 - (d) neither (a) nor (b)
15. Balance of trade is a part of:
 - (a) current account BoP
 - (b) capital account BoP
 - (c) official reserves account
 - (d) none of these

16. Invisibles balance refers to:
- Exports – Imports
 - Trade balance + Balance of non-factor services
 - Balance of non-factor services + Balance of income + Balance of transfers
 - Exports – Imports + Balance of factor services
17. When balance of payments balances:
- current account + capital account = zero
 - official reserves account is a part of current account
 - official reserves account is a part of capital account
 - both (a) and (c)
18. Exports = ₹ 1,000 lakh, imports = ₹ 1,650 lakh, balance of trade shows:
- surplus of ₹ 650 lakh
 - deficit of ₹ 650 lakh
 - balance of ₹ 2,650 lakh
 - none of these
19. If balance of trade is (–) ₹ 600 crore and value of exports is ₹ 500 crore, then the value of imports will be:
- ₹ 1,300 crore
 - ₹ 300 crore
 - ₹ 1,100 crore
 - ₹ 1,200 crore
20. If balance of trade is showing a deficit of ₹ 200 crore and value of imports is ₹ 900 crore, then the value of exports would be:
- ₹ 200 crore
 - ₹ 500 crore
 - ₹ 700 crore
 - ₹ 900 crore

Answers

1. (d) 2. (a) 3. (a) 4. (d) 5. (d) 6. (d) 7. (c) 8. (a) 9. (c) 10. (d)
 11. (c) 12. (c) 13. (d) 14. (a) 15. (a) 16. (c) 17. (d) 18. (b) 19. (c) 20. (c)

B. Fill in the Blanks

Choose appropriate word and fill in the blank:

- _____ records imports and exports of goods only. (Balance of trade/Balance of payments)
- _____ account transactions do not give rise to 'future claims'. (Current/Capital)
- There is a flow of foreign exchange into the country when we _____ goods and services. (export/import)
- _____ = Compensation of employees + Investment income. (Factor Incomes/Transfer Incomes)
- Export and import of all types of goods is recorded in the _____ account of BoP. (current/capital)
- _____ account balance includes the balance of trade as well as balance on invisibles. (Current/Capital)
- Export and import of capital goods is not included in the _____ account. (current/capital)

8. _____ items refer to such BoP transactions which are undertaken with a view to making profits. _____ (Autonomous/Accommodating)
9. When BoP is in _____ there is no movement of official reserves of the central bank. _____ (equilibrium/disequilibrium)
10. BoP surplus leads to an/a _____ in official reserves. _____ (increase/decrease)

Answers

1. Balance of trade 2. Current 3. export 4. Factor Incomes 5. current
6. Current 7. capital 8. Autonomous 9. equilibrium 10. increase

C. True or False

State whether the following statements are True or False:

1. Services are not visible when they cross the borders. (True/False)
2. Invisibles in BoP accounts include monetary transactions related to current transfers. (True/False)
3. Expenditure by the tourists is included in balance of trade. (True/False)
4. Current account records all payments to rest of the world as debit. (True/False)
5. BoP always balances when official reserves account is a part of capital account. (True/False)
6. Financial transactions relate to international sale and purchase of real assets. (True/False)
7. Balance of payments records transactions related to goods only. (True/False)
8. Accommodating items are meant to restore BoP balance. (True/False)
9. Increase in the official reserves is indicated by a negative sign in the BoP accounts. (True/False)
10. Unilateral transfers made by way of gifts, grants and remittances are treated as current transfers. (True/False)

Answers

1. True 2. True 3. False 4. True 5. True 6. False 7. False 8. True 9. True 10. True

D. Matching the Correct Statements

I. From the set of statements given in Column I and Column II, choose the correct pair of statements:

Column I	Column II
(a) External commercial borrowing	(i) Available at the concessional rate of interest
(b) Real assets	(ii) Stocks and bonds
(c) Autonomous items	(iii) Classified as 'below the line' items of BoP
(d) Exports of goods and services	(iv) Recorded as positive items in BoP accounts
(e) Deposits held by NRIs	(v) A component of current account

Answer

- (d) Exports of goods and services—(iv) Recorded as positive items in BoP accounts

II. Identify the correct sequence of alternatives given in Column II by matching them with respective items in Column I:

Column I	Column II
(a) Trade deficit	(i) Cause of BoP imbalance
(b) Merchandise	(ii) Export of goods < Import of goods
(c) Autonomous items	(iii) An element of invisibles
(d) Current transfers	(iv) Foreign institutional investment
(e) Portfolio investment	(v) Export and import of goods

Answers

(a)—(ii), (b)—(v), (c)—(i), (d)—(iii), (e)—(iv)

E. 'Very Short Answer' Objective Type Questions

1. What is meant by balance of payments?

Ans. Balance of payments refers to the statement of accounts recording all economic transactions of a country with rest of the world in an accounting year.

2. What is meant by balance of trade?

Ans. Balance of trade is defined as the difference between the value of imports and exports of only physical goods or visible items.

3. Which two transactions determine balance of trade?

Ans. (i) Export of goods (or visible items).
(ii) Import of goods (or visible items).

4. What is meant by visible items of balance of payments?

Ans. All such items of exports and imports which are material in nature are called visibles. These items can be seen crossing the borders. These are also called merchandise.

5. Name three invisible items of balance of payments.

Ans. (i) Export and import of services such as of shipping, insurance and banking.
(ii) Interest and dividend payments between the countries.
(iii) Expenditure by the tourists.

6. Define balance of payments on current account.

Ans. Balance of payments on current account records receipts and payments of foreign exchange of a country on account of such transactions which do not impact asset-liability status of a country in relation to rest of the world.

7. Define balance of payments on capital account.

Ans. Balance of payments on capital account records receipts and payments of foreign exchange of a country on account of such transactions which impact asset-liability status of a country in relation to rest of the world.

8. Name two items each relating to Current Account BoP and Capital Account BoP.

Ans. (i) Current Account BoP includes:
(a) export and import of goods (called merchandise), and
(b) export and import of services (called invisibles).

(ii) Capital Account BoP includes:

- (a) international sale and purchase of financial assets (like stocks and bonds), and
- (b) international sale and purchase of real assets (like plant and machinery).

9. How is balance of trade estimated?

Ans. Balance of Trade = Export of goods – Import of goods.

10. How is current account BoP estimated?

Ans. Current Account BoP = Trade balance + Invisibles balance.

11. What is the difference between the value of exports of goods and value of imports of goods called?

Ans. Balance of trade.

12. What does a deficit in balance of trade account indicate?

Ans. A deficit in balance of trade account indicates that the value of import of goods exceeds the value of export of goods.

13. What are autonomous items?

Ans. Autonomous items are those economic transactions in the current and capital account that are undertaken for certain economic or profit motive. These items are also known as 'above the line items'.

14. What are accommodating items?

Ans. Accommodating items are those economic transactions that are undertaken by the RBI with a view to correcting imbalances in the country's BoP account. These items are also known as 'below the line items'.

15. What is official reserves account?

Ans. It is the account indicating reserves of forex with the RBI.

2. Reason-based Questions (Comprehension of the Subject-matter)

Read the following statements carefully. Write True or False with a reason.

1. Balance of payments always balances.

Ans. True. But, it is only in the accounting sense that balance of payments always balances. It is movement of official reserves or 'below the line' items that imparts balance to the BoP accounts.

2. There is no difference between balance of trade and balance on current account of BoP.

Ans. False. Balance of trade includes only visible items whereas current account of balance of payments includes both visible as well as invisible items.

3. Trade of invisible items is a part of capital account of BoP.

Ans. False. Capital account records all such transactions which cause a change in the ownership of assets between the domestic economy and rest of the world.

4. High rate of inflation in the domestic economy causes 'deficit balance of trade'.

Ans. True. Because high rate of inflation makes domestic goods costlier in relation to goods from rest of the world. This leads to increase in imports and decrease in exports. Implying a deficit balance of trade.

5. Autonomous items of trade are undertaken by the government with a view to restore equilibrium in balance of payments.

Ans. False. Autonomous items are not meant to restore equilibrium in balance of payments. These are determined entirely by considerations of profit.

6. Improvement in exchange rate of the country's currency does not necessarily mean improvement in BoP status of the country.

Ans. True. Improvement in country's exchange rate may in fact cause deficit BoP equilibrium, because exports may decrease and imports may increase.

7. **Borrowing and lending in the international money market is a part of current account balance of payments.**
 Ans. False. Borrowing and lending in the international money market is a part of capital account balance of payments.
8. **Current account balance of payments includes export and import of goods only.**
 Ans. False. Current account balance of payments includes export and import of goods and services, *i.e.*, it includes value of export and import of both visible and invisible items.
9. **Current account surplus in balance of payments occurs when export of visibles > import of visibles.**
 Ans. False. Current account balance depends on:
 (i) export and import of visibles, and
 (ii) export and import of invisibles.
 Excess of export of visibles over and above import of visibles would lead to current account surplus BoP only if balance on invisibles is zero.
10. **If balance of trade is in deficit, the balance of payments is also in deficit.**
 Ans. False. Because balance of trade is only a part of BoP accounts.
11. **Balance of payments is balanced through unilateral transfers.**
 Ans. False. Balance of payments is not balanced through unilateral transfers. These transfers are only a component of current account BoP. BoP is balanced through accommodating items.
12. **'Above the line items' in BoP accounts include autonomous as well as accommodating items.**
 Ans. False. 'Above the line items' in BoP accounts include autonomous items only.
13. **BoP always balances when accommodating items are reflected as a part of capital account.**
 Ans. True. Because accommodating items are meant to restore a balance in BoP accounts.
14. **Foreign private loans are not included in the BoP accounts.**
 Ans. False. Foreign private loans are included in the capital account of balance of payments.
15. **NRI deposits in India are a component of current account balance of payments.**
 Ans. False. NRI deposits in India are a component of capital account balance of payments.
16. **'Transfers to rest of the world' is a debit component of balance of payments on current account.**
 Ans. True. Transfers to rest of the world is recorded as negative item and therefore, reflected in the debit side of balance of payments on current account. This is because it involves the payment of foreign exchange to rest of the world.
17. **Compensation of employees from rest of the world is a credit component of balance of payments on capital account.**
 Ans. False. Compensation of employees from rest of the world is a credit component of balance of payments on current account.

3. HOTS & Applications

1. **Do you think that a surplus in capital account BoP reflects prosperity of the nation?**
 Ans. No, it is incorrect to say that surplus in capital account reflects prosperity of the nation. Because surplus in capital account balance of payments may have been achieved through loans which are a financial obligation to rest of the world.
2. **Unfavourable balance on current account leads to high receipt of foreign exchange in the capital account. Do you agree?**
 Ans. Unfavourable balance on current account leaves us with no option other than (i) borrowings from rest of the world, or (ii) selling our assets to rest of the world. Either way, it leads to the receipt of

foreign exchange in the capital account. However, these receipts are only adding to our liability to rest of the world or reducing our ownership of assets vis-à-vis rest of the world.

3. **Balance of payments always balances. Does it mean a situation of zero net financial obligation for a country?**

Ans. It is only in the accounting sense that balance of payment always balances. From the practical point of view, it should not be interpreted as a situation of zero net financial obligation for a country. A negative balance on the current account is equated with positive balance in the capital account. But the positive balance in capital account may have been achieved through loans from rest of the world. All loans are financial obligations to rest of the world.

4. **CAD (current account deficit) can be managed through import substitution. Do you agree?**

Ans. It is true that CAD can be managed through import substitution. Import substitution implies that domestic goods are substituted for the imported goods. Example: We can cut imports by shifting from allopathic drugs to ayurvedic drugs. This will help us save foreign exchange. Accordingly, CAD can be managed.

5. **How are remittances by NRIs helpful in tackling BoP deficit?**

Ans. Remittances by NRIs are reflected as receipts of foreign exchange in the capital account. If these receipts shoot up, then the BoP deficit (excess of payment of foreign exchange over and above the receipts of foreign exchange) is reduced. Thus, remittances by NRIs are helpful in tackling BoP deficit.

6. **Calculate the value of imports when the balance of trade (merchandise) is (–) ₹ 1,000 crore and the value of exports is ₹ 500 crore.**

Ans.

$$\begin{aligned} \text{Balance of Trade} &= \text{Value of exports} - \text{Value of imports} \\ (-) ₹ 1,000 \text{ crore} &= ₹ 500 \text{ crore} - \text{Value of imports} \\ \text{Value of imports} &= ₹ 500 \text{ crore} + ₹ 1,000 \text{ crore} \\ &= ₹ 1,500 \text{ crore} \end{aligned}$$

Value of imports = ₹ 1,500 crore.

7. **The balance of trade shows a surplus of ₹ 10,000 crore and the import of merchandise is half of the export of merchandise. Find the value of exports.**

Ans. Suppose the value of exports = X

Balance of trade = ₹ 10,000 crore

$$\text{Import} = \frac{1}{2} \text{ of (Export)} = \frac{1}{2}(X)$$

We know,

$$\text{Balance of Trade} = \text{Export} - \text{Import}$$

$$= X - \frac{1}{2}(X)$$

$$\Rightarrow 10,000 = X - \frac{X}{2}$$

$$\Rightarrow 10,000 = \frac{X}{2}$$

$$\Rightarrow X = 20,000$$

Exports = ₹ 20,000 crore.

8. **Capital account BoP shows a deficit of ₹ 40,000, and exports of merchandise = import of merchandise = ₹ 30,000. Find the state of balance of the current account BoP. Give reason in support of your answer.**

Ans. The current account balance of payments shows a surplus of ₹ 40,000. Because the overall balance of payments always balances and when there is deficit in the capital account, there should be surplus in the current account of balance of payments by the equal amount.

9. "Slump in oil prices."

How will this affect India's CAD?

Ans. India is a big importer of oil. A fall in oil prices means that India will be able to save foreign exchange even when the quantum of import is not reduced. Accordingly, CAD will be managed. This will help in improving India's current account deficit.

10. *Indian Rupee has been depreciating in the recent times.*

What effect will it have on the CAD?

Ans. As a result of depreciation of the rupee, foreign goods become expensive while domestic goods become cheaper. This should lead to a rise in exports and fall in imports. Accordingly, CAD should improve. But, if we are importing certain essential raw materials (the imports of which cannot be cut) our import bill may swell with the increase in exchange rate. Accordingly, CAD may not improve. In fact, it may deteriorate further.

11. What is 'current account deficit' in the balance of payments?

Ans. Current account deficit in BoP refers to the deficit occurring on account of:

Trade balance

+ Balance on invisibles (= balance on factor income + balance on non-factor income + balance on transfers).

12. How is BoP deficit or BoP surplus estimated?

Ans. BoP deficit (or surplus) is estimated in terms of an overall BoP balance. It is found out by combining the balance related to current account BoP and capital account BoP. Also, errors and omissions (indicating statistical discrepancies) are taken account of. Thus, the overall balance (deficit or surplus) is estimated by specifying the following equation:

Overall Balance = Current account balance + Capital account balance + Errors and omissions

In case overall balance is found to be positive, it is called BoP surplus.

In case it is found to be negative, it is called BoP deficit.

4. Analysis & Evaluation

1. How would you argue for and against foreign investment?

Ans. (A) Arguments against Foreign Investment:

- (i) Foreign investment leads to rise in claims by the foreigners against assets in the domestic economy. Implying concentration of economic power with the foreign investors in the domestic economy.
- (ii) Greater the foreign investment, larger is the flow of investment income (profits, interest and dividends) out of the domestic economy. Implying a constant drain of foreign exchange out of the country.

(B) Arguments in favour of Foreign Investment:

- (i) Overall investment in the domestic economy is expanded, leading to a rise in the level of output and employment.
- (ii) If direct foreign investment is directed towards export-oriented industry, exports will rise. Increase in exports causes a rise in AD. It is like an injection into the circular flow of income.
- (iii) FDI eases pressure on the scarce domestic resources. Accordingly, domestic resources can be released for the production of such goods (public goods) where private investment is low.

2. How is cancellation of coal blocks allocation by the Supreme Court of India likely to affect our CAD (current account deficit)?

Ans. Cancellation of coal blocks allocation is likely to cause a fall in supply of coal, particularly for the production of electricity. Since coal is the core input for the generation of power in India, a cut in domestic supply is bound to cause a rise in imports. Our import bill is bound to rise. A rise in import payments implies a rise in CAD, other things remaining constant.

3. How do we finance the deficit on current account BoP in case official reserves with the RBI are not moved?

Ans. We are left with two alternatives only:

(i) We borrow from rest of the world.

(ii) We sell our assets (financial assets like stocks and bonds, & physical assets like plant and machinery) to rest of the world.

5. CBSE Questions—Past 5 years (With Answers or Reference to the Text for Answers)

1. Where will sale of machinery to abroad be recorded in the balance of payments accounts? Give reasons. [CBSE Delhi 2015]

[Sale of machinery to abroad is accounted under trade balance or current account BoP. Because sale/purchase of machinery is a part of the merchandise, and all merchandise is recorded as a trade balance in the current account BoP.]

2. Name the broad categories of transactions recorded in the 'current account' of the balance of payments accounts. [CBSE Delhi 2015]

[Page 366, 367]

3. Name the broad categories of transactions recorded in the 'capital account' of the balance of payments accounts. [CBSE Delhi 2015]

[Page 370, 371]

4. Where is 'borrowings from abroad' recorded in the balance of payments accounts? Give reasons.

[CBSE (AI) 2015]

['Borrowings from abroad' is recorded in the capital account of the balance of payments accounts. It is reflected in the capital account, as it impacts the asset-liability status of a country. It does not involve movement of goods and services across the borders. Also, borrowing is recorded with a +sign in the BoP accounts. This is because it leads to the receipt of foreign exchange from rest of the world.]

5. Giving reasons, explain where charity to foreign countries is recorded in the balance of payments accounts. [CBSE (F) 2015]

[Charity to foreign countries is recorded under invisibles current account BoP. Because charity to foreign countries is a part of the current transfers, and all current transfers are recorded as a invisible balance in the current account BoP.]

6. Give the meanings of balance of trade and balance on current account of balance of payments accounts. [CBSE (F) 2015]

[Page 369]

7. Give the meanings of 'autonomous' transactions and 'accommodating' transactions in the balance of payments accounts. [CBSE (F) 2015]

[Page 376]

8. Foreign exchange transactions dependent on other foreign exchange transactions are called: (choose the correct alternative) [CBSE Delhi 2016]
- (a) current account transactions (b) capital account transactions
(c) autonomous transactions (d) accommodating transactions
- [(d)]
9. (a) In which sub-account and on which side of balance of payments account will foreign investments in India be recorded? Give reasons.
(b) What will be the effect of foreign investments in India on exchange rate? Explain. [CBSE Delhi 2016]
- [(a) Foreign investments in India will be recorded in the capital account of the balance of payments account. It is reflected in the capital account, as it impacts the asset-liability status of a country. It does not involve movement of goods and services across the borders. Also, foreign investments in India will be recorded with a +sign (credit side) in the BoP account because it leads to the receipt of foreign exchange from rest of the world.
(b) As a result of foreign investments in India, supply of foreign currency increases. Accordingly, supply curve shifts to the right. This causes a fall in equilibrium exchange rate. Now one US dollar is available for less Indian rupees. This is a situation of appreciation of the domestic currency.]
10. Foreign exchange transactions which are independent of other transactions in the balance of payments account are called: (choose the correct alternative) [CBSE (AI) 2016]
- (a) current transactions (b) capital transactions
(c) autonomous transactions (d) accommodating transactions
- [(c)]
11. Indian investors lend abroad. Answer the following questions:
- (a) In which sub-account and on which side of the balance of payments account such lending is recorded? Give reasons.
(b) Explain the impact of this lending on market exchange rate. [CBSE (AI) 2016]
- [(a) 'Indians lending to abroad' is recorded in the capital account of the balance of payments account. It is reflected in the capital account, as it impacts the asset-liability status of a country. It does not involve movement of goods and services across the borders. Also, lending abroad is recorded with a –sign (debit side) in the BoP account. This is because it leads to the payment of foreign exchange to rest of the world.
(b) As a result of lending to abroad, demand for foreign currency increases. Accordingly, demand curve shifts to the right. This causes a rise in equilibrium exchange rate. Now, more Indian rupees are to be paid for one US dollar. This is a situation of depreciation of the domestic currency.]
12. Balance of payments 'deficit' is the excess of: (choose the correct alternative) [CBSE (F) 2016]
- (a) current account payments over current account receipts
(b) capital account payments over capital account receipts
(c) autonomous payments over autonomous receipts
(d) accommodating payments over a accommodating receipts
- [(c)]
13. Indian investors borrow from abroad. Answer the following:
- (a) In which sub-account and on which side of the balance of payments account will this borrowing be recorded? Give reason.
(b) Explain what is the impact of this borrowing on exchange rate. [CBSE (F) 2016]

[(a) 'Borrowing from abroad' will be recorded in the capital account of the balance of payments account. It is reflected in the capital account, as it impacts the asset-liability status of a country. It does not involve movement of goods and services across the borders. Also, borrowing from abroad will be recorded with a +sign (credit side) in the BoP account. This is because it leads to the receipt of foreign exchange from rest of the world.]

(b) As a result of borrowing from abroad, supply of foreign currency increases. Accordingly, supply curve shifts to the right. This causes a fall in equilibrium exchange rate. Now one US dollar is available for less Indian rupees. This is a situation of appreciation of domestic currency.]

14. Give the meaning of balance of payments. [CBSE Delhi 2017]
[Page 365]

15. Distinguish (a) between current account and capital account, and (b) between autonomous transactions and accommodating transactions of balance of payments account. [CBSE (AI) 2017]
[Page 376, 378]

16. What are non-debt creating capital receipts? Give two examples of such receipts. [CBSE (AI) 2017]
[Non-debt creating capital receipts are those receipts which do not create debt.
Examples: Recovery of loans, disinvestment.]

Recovery of loans (by the government) does not create any debt for the government. It only clears debt of the borrower. Likewise, disinvestment by the government leads to capital receipts without causing any debt burden. These receipts arise because of the liquidation (sale) of past investments.]

17. What is meant by trade deficit? [CBSE (F) 2017]
[Trade deficit occurs when: 'export of goods' < 'import of goods'.]

18. Define "Trade Surplus". How is it different from "Current Account Surplus"? [CBSE 2019 (58/1/1)]
[Trade surplus occurs when: $X > M$ (export of goods > import of goods).
Current account surplus occurs when: 'export of goods as well as of invisibles' > 'import of goods as well as of invisibles'.]

19. Define "Trade Surplus" and "Trade Deficit". [CBSE 2019 (58/2/1)]
[See Q. 17 & Q. 18, above]

20. What is meant by "current account surplus"? [CBSE 2019 (58/2/2)]
[See Q. 18, above]

21. Distinguish between 'Trade Deficit' and 'Current Account Deficit'. [CBSE 2019 (58/2/3)]
[See Q. 17, above
Current account deficit occurs when: 'export of goods as well as of invisibles' < 'import of goods as well as of invisibles'.]

22. Define autonomous transactions in balance of payments of an economy. [CBSE 2019 (58/3/1)]
[Page 376]

23. Define accommodating transactions in balance of payments of an economy. [CBSE 2019 (58/3/1)]
[Page 376]

24. "A country with trade deficit cannot have current account surplus in its Balance of Payments." Do you agree with the given statement? Discuss with reason. [CBSE 2019 (58/3/1)]
[No. Surplus in current account can arise when the deficit on trade account is less than the surplus on account of invisibles. In other words, when the surplus arising out of the excess of export of invisibles over the import of invisibles is greater than the deficit arising out of the excess of imports over exports, we will have current account surplus.]

25. State on which side of capital account/current account will the following transactions be recorded and why:
- Interest on loan received from Nepal.
 - Import of mobile phones from China. [CBSE 2019 (58/4/1)]
- [(i) Interest on loan received from Nepal will be recorded in the credit side of current account as it causes inflow of the foreign currency to the home country.
(ii) Import of mobile phones from China will be recorded in the debit side of current account as it causes outflow of the foreign currency through visible imports.]
26. Distinguish between autonomous and accommodating transactions of balance of payments account. [CBSE 2019 (58/4/1)]
[Page 376]
27. State the meaning of the following:
- Trade surplus.
 - Accommodating transactions. [CBSE 2019 (58/5/1)]
- [Page 376; See Q. 18, above]

6. NCERT Questions (With Hints to Answers)

- Differentiate between balance of trade and current account balance.
[Hint: Balance of Trade = Export of material goods – Import of material goods.
Current Account Balance = Trade balance + Balance on account of invisibles. Invisibles include factor and non-factor services as well as current transfers.]
- What are official reserve transactions? Explain their importance in the balance of payments.
[Hint: Transactions that cause changes in the official reserves of the central bank are known as official reserve transactions.
When current account balance and capital account balance is not equal to zero (and therefore, BoP is not in a state of balance), there are official reserves transactions of the central bank. These transactions act as accommodating items in the balance of payments. These are undertaken with a view to correcting BoP imbalance.]

7. Miscellaneous Questions and Reference to the Text for Answers

A. Questions of 3 & 4 marks each

- What is meant by balance of payments? Name its components. [Page 365, 366]
- What is meant by visible and invisible items in the balance of payments account? Give two examples of invisible items. [Page 366, 367]
- State the components of the current account of balance of payments account. [Page 366, 367]
- State the components of the capital account of balance of payments account. [Page 370, 371]
- Distinguish between current account and capital account of balance of payments account. In what account would banking capital be included? [Page 378]
- State the difference between autonomous and accommodating items of balance of payments account. [Page 376]

7. Balance of payments always balances. Explain.

[Page 373, 374]

8. What is meant by balance of payments deficit? Explain.

[Page 375, 388, Q. 12]

B. Questions of 6 marks each

1. What is balance of payments account? Name three components each of its current account and capital account.

Or

List three items each of current account and capital account of the balance of payments account.

[Page 365–371]

2. How is balance of trade different from balance of payments? State the items not included in balance of trade.

[Page 369, 379]

3. Is improvement in exchange rate of the country's currency always beneficial for BoP?

[Hint: Improvement in the exchange rate of a country's currency (say Indian rupee vis-à-vis US dollar) implies that less rupees are to be paid for a dollar than before. It points to the relative strength of the Indian rupee in the international market. However, for a developing country like India it is not always desired. It would mean that one US dollar now can buy less Indian goods for a dollar than before, which might cause a cut US demand for the Indian goods. Accordingly, our exports may slide down, adding to BoP deficit.]

4. Is rising reserve of India's foreign exchange a sign of rising production activity in the economy?

[Hint: Not necessarily. Reserves of foreign exchange in India tend to rise largely on account of borrowings, FDI and FII. As regards the role of borrowings, production activity is expected to accelerate only if borrowings are not related to unproductive use (implying consumption). FII relates to investment in shares and bonds, and therefore, is not directly related to production activity. FDI of course is directly related to production activity. If foreign exchange reserves build up on account of FDI, production activity is expected to accelerate.]

5. How does balance of payments reflect supply, demand status of foreign exchange for a country?

[Hint: Unfavourable balance of payments status of a country shows our greater financial obligations to rest of the world than our financial claims against rest of the world. It also reflects a situation of low forex reserves of the country. Together these facts imply that: (i) availability of forex reserves is low, and (ii) demand for forex reserves is high. This pushes up demand for forex in the international market. Accordingly, the price of 'forex' or the rate at which the country can buy foreign exchange tends to rise.]

DOs and DON'Ts

1. It must be borne in mind that, as a matter of convention, (i) all current transfers between a country and rest of the world are recorded as invisibles in the current account BoP, and (ii) all direct purchases by non-resident tourists in the domestic economy and all direct purchases by the resident tourists in rest of the world are recorded as invisibles in the current account BoP. Thus, charity (grants) to rest of the world (or from rest of the world) is to be recorded as a component of invisibles in the current account BoP.
2. Never lose sight of the basic principle in BoP accounting that, all receipts of foreign exchange (by way of incomes, revenue, transfers or borrowings) are recorded as positive (+) items, while all payments of foreign exchange are recorded as negative (–) items. The balance is estimated as the difference between receipts (+ items) and payments (– items).
3. Export and import of goods includes all types of goods, whether these are consumer goods (like bread and butter) or capital goods (like plant and machinery). Balance on account of export and import of goods is called Trade Balance. It is an element of current account BoP. **Never consider the export and import of capital goods (like plant and machinery) as an element of capital account BoP.**
4. **Monetary transactions relating to capital account BoP do not involve the movement of goods and services from one country to the other.** These transactions arise simply because: (i) the ownership of physical assets is transferred by one country to the other (without moving these assets from one country to the other), (ii) the ownership of financial assets (stocks and bonds) is transferred by one country to the other, (iii) foreign exchange is transferred from one country to the other by way of loans/borrowings. Thus, goods do not move across the borders. **Only the foreign exchange moves from one country to the other on account of change in ownership of assets.**
5. Remember that an accounting equilibrium in BoP does not necessarily point to a good economic health of an economy. It may emerge simply because high CAD (current account deficit) has been tackled through high borrowings from rest of the world. High borrowings (reflected as receipts of foreign exchange in BoP accounts) are indeed a reflection of poor performance of the economy both in the domestic as well as global markets.



• What Causes Disequilibrium in BoP?

Disequilibrium in BoP is caused by a number of factors, broadly categorised as (i) **economic factors**, (ii) **political factors**, and (iii) **social factors**. Following are the details:

(i) Economic Factors

- (a) **Huge development expenditure** by the government owing to which there are large scale imports. It may cause a 'deficit BoP disequilibrium'.
- (b) **Business cycles** in terms of recession, depression, recovery and boom. A period of boom may witness large scale exports of a country. Accordingly, a 'surplus BoP disequilibrium' may occur.
- (c) **High rate of inflation** in the domestic market, compelling large scale imports of essential goods. This causes 'deficit BoP disequilibrium'.

- (d) **Development of import substitutes**, because of which imports are reduced and surplus BoP may emerge in place of deficit BoP.
- (e) **Change in the cost structure of trading partners**, because of technological and managerial innovations. Favourable change in cost structure would encourage exports and lead to 'surplus BoP disequilibrium'.

(ii) Political Factors

- (a) **Political instability** owing to which inflow of direct foreign investment and portfolio investment from abroad may shrink. It causes deficit on capital account BoP.
- (b) **Populism policies** of the government like huge cuts in import duty. This encourages imports because of which current account deficit may swell.

(iii) Social Factors

- (a) **Change in tastes and preferences**, owing to which pattern of demand (in the international market) may change. A favourable change may encourage exports, while an unfavourable shift may cause a rise in imports. A rise in exports leads to current account surplus. A rise in imports leads to a current account deficit.
- (b) **Cross-border prejudices**, which sometimes force the countries (like, India and Pakistan) to shift to expensive sources of imports and less profitable areas of exports. Such situations often drive an economy towards the state of deficit BoP disequilibrium.

● **Balance of Payments (BoP):
Accounting Sense and Operational Sense**

Let us understand the concept of balance of payments in 'accounting sense' and 'operational sense' through the following illustration. Carefully examine the data given in the following table:

Balance of Payments

Assets (Credits)	₹ crore	Liabilities (Debits)	₹ crore
1. Export of goods	550	1. Import of goods	800
2. Export of services (banking, shipping, insurance, tourism, etc.)	150	2. Import of services (banking, shipping, insurance, tourism, etc.)	50
3. Transfer payments from rest of the world (gifts, aid, etc.)	100	3. Transfer payments to rest of the world (gifts, aid, etc.)	80
4. Capital receipts (loans, sale of assets to foreigners, receipt of capital)	200	4. Capital payments (loans to foreigners, buying of assets from foreigners, payment of capital to foreigners)	70
Total Receipts	1,000	Total Payments	1,000

The above table shows that in the **accounting sense balance of payments balances**, because total receipts (credits) are equal to total payments (debits), i.e., ₹ 1,000 crore. But in the operational sense, the analysis of the table reveals the following facts:

- **Balance of Trade** (the difference between the value of total exports and imports) is negative.

$$\begin{aligned}\text{Balance of Trade} &= \text{Export of goods} - \text{Import of goods} \\ &= ₹ 550 \text{ crore} - ₹ 800 \text{ crore} \\ &= (-) ₹ 250 \text{ crore}\end{aligned}$$

- **Balance of Payments on Current Account** shows a deficit of ₹ 130 crore.

$$\begin{aligned}\text{Balance of Payments on Current Account} &= \text{Trade Balance (Export of goods} - \text{Import of goods)} + \text{Invisibles} \\ &\quad \text{Balance [Balance on non-factor services (banking, shipping, etc.)} \\ &\quad \text{+ Balance on current transfers]} \\ &= (₹ 550 \text{ crore} - ₹ 800 \text{ crore}) + [(₹ 150 \text{ crore} - ₹ 50 \text{ crore}) \\ &\quad + (₹ 100 \text{ crore} - ₹ 80 \text{ crore})] \\ &= (-) ₹ 250 \text{ crore} + ₹ 100 \text{ crore} + ₹ 20 \text{ crore} \\ &= (-) ₹ 130 \text{ crore}\end{aligned}$$

- **Balance of Payments on Capital Account** shows a surplus of ₹ 130 crore.

$$\begin{aligned}\text{Balance of Payments on Capital Account} &= \text{Capital Receipts} - \text{Capital Payments} \\ &= ₹ 200 \text{ crore} - ₹ 70 \text{ crore} \\ &= ₹ 130 \text{ crore}\end{aligned}$$

- **Overall Balance of Payments Balances** (₹ 1,000 crore of receipts = ₹ 1,000 crore of payments) because the surplus balance of ₹ 130 crore on capital account compensates deficit balance of ₹ 130 crore on current account.

- **From where has the ₹ 130 crore surplus on capital account emerged?**

In fact ₹ 130 crore may have been received through foreign loans. In that case, the surplus of capital account actually reflects our indebtedness, not a sound financial status.





NUMERICALS:

SOLVED AND UNSOLVED

SOLVED NUMERICALS

[CBSE QUESTIONS— PAST 5 YEARS AND RELATED ONES]

NATIONAL INCOME AND RELATED AGGREGATES

Numericals related to Nominal GDP

1. If Real GDP is ₹ 200 and price index (with base = 100) is 110, calculate Nominal GDP. [CBSE Delhi 2015]

Sol.
$$\text{Real GDP} = \frac{\text{Nominal GDP}}{\text{Price Index}} \times 100$$

Or,
$$\begin{aligned}\text{Nominal GDP} &= \frac{\text{Real GDP} \times \text{Price Index}}{100} \\ &= \frac{200 \times 110}{100} = 220\end{aligned}$$

Ans. Nominal GDP = ₹ 220.

2. If the Real GDP is ₹ 500 and price index (base = 100) is 125, calculate the Nominal GDP.

[CBSE (AI) 2015]

Sol.
$$\text{Real GDP} = \frac{\text{Nominal GDP}}{\text{Price Index}} \times 100$$

$$\begin{aligned}500 &= \frac{\text{Nominal GDP}}{125} \times 100 \\ \text{Nominal GDP} &= 500 \times \frac{125}{100} = 625\end{aligned}$$

Ans. Nominal GDP = ₹ 625.

3. If the Real Gross Domestic Product is ₹ 250 and the price index (base = 100) is 120, calculate the Nominal Gross Domestic Product.

[CBSE (F) 2015]

Sol.
$$\text{Real GDP} = \frac{\text{Nominal GDP}}{\text{Price Index}} \times 100$$

Or,
$$\begin{aligned}\text{Nominal GDP} &= \frac{\text{Real GDP} \times \text{Price Index}}{100} \\ &= \frac{250 \times 120}{100} = 300\end{aligned}$$

Ans. Nominal gross domestic product = ₹ 300.

4. Assuming real income to be ₹ 200 crore and price index to be 135, calculate nominal income.

[CBSE (AI) 2016]

Sol.
$$\text{Real Income} = \frac{\text{Nominal Income}}{\text{Price Index}} \times 100$$

Or,

$$\text{Nominal Income} = \frac{\text{Real Income} \times \text{Price Index}}{100}$$

$$= \frac{200 \times 135}{100} = 270$$

Ans. Nominal income = ₹ 270 crore.

5. If real income is ₹ 400 and price index is 105, calculate nominal income. [CBSE (AI) 2016]

Sol.

$$\text{Real Income} = \frac{\text{Nominal Income}}{\text{Price Index}} \times 100$$

Or,

$$\text{Nominal Income} = \frac{\text{Real Income} \times \text{Price Index}}{100}$$

$$= \frac{400 \times 105}{100} = 420$$

Ans. Nominal income = ₹ 420.

6. Given real income to be 400 and price index be 100, calculate nominal income. [CBSE (F) 2016]

Sol.

$$\text{Real Income} = \frac{\text{Nominal Income}}{\text{Price Index}} \times 100$$

Or,

$$\text{Nominal Income} = \frac{\text{Real Income} \times \text{Price Index}}{100}$$

$$= \frac{400 \times 100}{100} = 400$$

Ans. Nominal income = 400.

Numericals related to Real GDP

7. If the Nominal GDP is ₹ 1,200 and price index (with base = 100) is 120, calculate Real GDP.

[CBSE Delhi 2015]

Sol.

$$\text{Real GDP} = \frac{\text{Nominal GDP}}{\text{Price Index}} \times 100$$

$$= \frac{1,200}{120} \times 100 = 1,000$$

Ans. Real GDP = ₹ 1,000.

8. If the Nominal GDP is 600 and price index (base = 100) is 120, calculate the Real GDP. [CBSE (AI) 2015]

Sol.

$$\text{Real GDP} = \frac{\text{Nominal GDP}}{\text{Price Index}} \times 100$$

$$= \frac{600}{120} \times 100 = 500$$

Ans. Real GDP = 500.

9. If the Nominal Gross Domestic Product = ₹ 4,400 and the price index (base = 100) = 110, calculate the Real Gross Domestic Product. [CBSE (F) 2015]

Sol.

$$\text{Real GDP} = \frac{\text{Nominal GDP}}{\text{Price Index}} \times 100$$

$$= \frac{4,400}{110} \times 100 = 4,000$$

Ans. Real gross domestic product = ₹ 4,000.

10. If nominal income is ₹ 500 and price index is 125, calculate real income. [CBSE (AI) 2016]

Sol.
$$\text{Real Income} = \frac{\text{Nominal Income}}{\text{Price Index}} \times 100$$
$$= \frac{500}{125} \times 100 = 400$$

Ans. Real income = ₹ 400.

11. Given nominal income to be ₹ 375 and price index 125, calculate real income. [CBSE (F) 2016]

Sol.
$$\text{Real Income} = \frac{\text{Nominal Income}}{\text{Price Index}} \times 100$$
$$= \frac{375}{125} \times 100 = 300$$

Ans. Real income = ₹ 300.

12. If nominal income is ₹ 600 and price index is 100, find real income. [CBSE (F) 2016]

Sol.
$$\text{Real Income} = \frac{\text{Nominal Income}}{\text{Price Index}} \times 100$$
$$= \frac{600}{100} \times 100 = 600$$

Ans. Real income = ₹ 600.

Numericals related to Price Index

13. If the Real GDP is ₹ 300 and Nominal GDP is ₹ 330, calculate price index (base = 100).

[CBSE Delhi 2015]

Sol.
$$\text{Real GDP} = \frac{\text{Nominal GDP}}{\text{Price Index}} \times 100$$

Or,
$$\text{Price Index} = \frac{\text{Nominal GDP}}{\text{Real GDP}} \times 100$$
$$= \frac{330}{300} \times 100 = 110$$

Ans. Price index = 110.

14. If the Real GDP is ₹ 400 and Nominal GDP is ₹ 450, calculate the price index (base = 100).

[CBSE (AI) 2015]

Sol.
$$\text{Real GDP} = \frac{\text{Nominal GDP}}{\text{Price Index}} \times 100$$
$$400 = \frac{450}{\text{Price Index}} \times 100$$
$$\text{Price Index} = \frac{450}{400} \times 100 = 112.5$$

Ans. Price index = 112.5.

15. If the Real Gross Domestic Product is ₹ 200 and the Nominal Gross Domestic Product is ₹ 210, calculate the price index (base = 100). [CBSE (F) 2015]

Sol.
$$\text{Real GDP} = \frac{\text{Nominal GDP}}{\text{Price Index}} \times 100$$

Or,
$$\text{Price Index} = \frac{\text{Nominal GDP}}{\text{Real GDP}} \times 100$$
$$= \frac{210}{200} \times 100 = 105$$

Ans. Price index = 105.

METHODS OF CALCULATING NATIONAL INCOME

Numericals related to Value Added/Product Method

1. Calculate Value Added by firm A and firm B, given the following information:

Items	(₹ in lakh)
(i) Purchases by firm A from abroad	60
(ii) Sales by firm B	180
(iii) Purchases by firm A from firm B	100
(iv) Domestic sales by firm A	220
(v) Exports by firm A	60
(vi) Excess of opening stock over closing stock of firm A	20
(vii) Excess of closing stock over opening stock of firm B	30
(viii) Purchases by firm B from firm A	100

Sol. Value Added by Firm A

$$\begin{aligned} &= \text{Domestic sales} + \text{Exports} - \text{Excess of opening stock over closing stock} - \text{Purchases from firm B} \\ &\quad - \text{Purchases from abroad} \\ &= ₹ 220 \text{ lakh} + ₹ 60 \text{ lakh} - ₹ 20 \text{ lakh} - ₹ 100 \text{ lakh} - ₹ 60 \text{ lakh} \\ &= ₹ 100 \text{ lakh} \end{aligned}$$

Value Added by Firm B

$$\begin{aligned} &= \text{Sales} + \text{Excess of closing stock over opening stock} - \text{Purchases from firm A} \\ &= ₹ 180 \text{ lakh} + ₹ 30 \text{ lakh} - ₹ 100 \text{ lakh} \\ &= ₹ 110 \text{ lakh} \end{aligned}$$

Ans. Value added by firm A = ₹ 100 lakh.

Value added by firm B = ₹ 110 lakh.

2. Find Gross Value Added by firm A, given the following information:

Items	(₹)
(i) Purchase of factor inputs by firm A	5,00,000
(ii) Purchase of non-factor inputs by firm A	2,00,000
(iii) Sales by firm A to other firms in the domestic economy	10,00,000
(iv) Import of raw material by firm A from rest of the world	50,000
(v) Excess of its opening stock over closing stock	1,00,000

Sol. Gross Value Added by Firm A

$$\begin{aligned} &= \text{Sales by firm A} - \text{Purchase of non-factor inputs} - \text{Excess of opening stock over closing stock} \\ &= ₹ 10,00,000 - ₹ 2,00,000 - ₹ 1,00,000 \\ &= ₹ 7,00,000 \end{aligned}$$

Ans. Gross value added by firm A = ₹ 7,00,000.

[Note: It is assumed that purchases of non-factor inputs include purchases from the domestic market as well as from abroad.]

3. Calculate 'Value of Output' from the following data:

Items	(₹ in lakh)
(i) Net value added at factor cost	100
(ii) Intermediate consumption	75
(iii) Excise duty	20

(iv) Subsidy	5
(v) Depreciation	10

Sol. Net Value Added at Factor Cost

$$= \text{Value of output} - \text{Intermediate consumption} - \text{Depreciation} - \text{Excise duty} + \text{Subsidy}$$

Or, Value of Output

$$= \text{Net value added at factor cost} + \text{Intermediate consumption} + \text{Depreciation} + \text{Excise duty} - \text{Subsidy}$$

$$= ₹ 100 \text{ lakh} + ₹ 75 \text{ lakh} + ₹ 10 \text{ lakh} + ₹ 20 \text{ lakh} - ₹ 5 \text{ lakh}$$

$$= ₹ 200 \text{ lakh}$$

Ans. Value of output = ₹ 200 lakh.

4. Calculate 'Intermediate Consumption' from the following data:

Items	(₹ in lakh)
(i) Value of output	200
(ii) Net value added at factor cost	80
(iii) Sales tax	15
(iv) Subsidy	5
(v) Depreciation	20

Sol. Net Value Added at Factor Cost

$$= \text{Value of output} - \text{Intermediate consumption} - \text{Depreciation} - \text{Indirect tax} + \text{Subsidy}$$

Or, Intermediate Consumption

$$= \text{Value of output} - \text{Net value added at factor cost} - \text{Depreciation} - \text{Indirect tax} + \text{Subsidy}$$

$$= ₹ 200 \text{ lakh} - ₹ 80 \text{ lakh} - ₹ 20 \text{ lakh} - ₹ 15 \text{ lakh} + ₹ 5 \text{ lakh}$$

$$= ₹ 90 \text{ lakh}$$

Ans. Intermediate consumption = ₹ 90 lakh.

5. Calculate 'Sales' from the following data:

Items	(₹ in lakh)
(i) Net value added at factor cost	300
(ii) Intermediate consumption	200
(iii) Indirect tax	20
(iv) Depreciation	30
(v) Change in stocks	(-) 50

Sol. Net Value Added at Factor Cost

$$= \text{Sales} + \text{Change in stocks} - \text{Intermediate consumption} - \text{Depreciation} - \text{Indirect tax}$$

Or, Sales = Net value added at factor cost - Change in stocks + Intermediate consumption + Depreciation + Indirect taxes

$$= ₹ 300 \text{ lakh} - (-) ₹ 50 \text{ lakh} + ₹ 200 \text{ lakh} + ₹ 30 \text{ lakh} + ₹ 20 \text{ lakh}$$

$$= ₹ 300 \text{ lakh} + ₹ 50 \text{ lakh} + ₹ 200 \text{ lakh} + ₹ 30 \text{ lakh} + ₹ 20 \text{ lakh}$$

$$= ₹ 600 \text{ lakh}$$

Ans. Sales = ₹ 600 lakh.

6. From the following data, calculate 'Gross Value Added at Factor Cost':

Items	(₹ in crore)
(i) Sales	8,000
(ii) Change in stock	100

(iii) Subsidies	200
(iv) Consumption of fixed capital	300
(v) Intermediate consumption	5,500
(vi) Rent	500

Sol. Gross Value Added at Factor Cost

$$\begin{aligned}
 &= \text{Sales} + \text{Change in stock} - \text{Intermediate consumption} + \text{Subsidies} \\
 &= ₹ 8,000 \text{ crore} + ₹ 100 \text{ crore} - ₹ 5,500 \text{ crore} + ₹ 200 \text{ crore} \\
 &= ₹ 2,800 \text{ crore}
 \end{aligned}$$

Ans. Gross value added at factor cost = ₹ 2,800 crore.

7. Calculate 'Sales' from the following data:

Items	(₹ in lakh)
(i) Intermediate costs	700
(ii) Consumption of fixed capital	80
(iii) Change in stock	(-) 50
(iv) Subsidy	60
(v) Net value added at factor cost	1,300
(vi) Exports	50

Sol. Net Value Added at Factor Cost

$$= \text{Sales} + \text{Change in stock} - \text{Intermediate costs} - \text{Consumption of fixed capital} + \text{Subsidy}$$

Or, Sales

$$\begin{aligned}
 &= \text{Net value added at factor cost} - \text{Change in stock} + \text{Intermediate costs} + \text{Consumption of fixed capital} - \text{Subsidy} \\
 &= ₹ 1,300 \text{ lakh} - (-) ₹ 50 \text{ lakh} + ₹ 700 \text{ lakh} + ₹ 80 \text{ lakh} - ₹ 60 \text{ lakh} \\
 &= ₹ 1,300 \text{ lakh} + ₹ 50 \text{ lakh} + ₹ 700 \text{ lakh} + ₹ 80 \text{ lakh} - ₹ 60 \text{ lakh} \\
 &= ₹ 2,070 \text{ lakh}
 \end{aligned}$$

Ans. Sales = ₹ 2,070 lakh.

8. Calculate 'Intermediate Consumption' from the following data:

Items	(₹ in lakh)
(i) Net value added at factor cost	300
(ii) Sales	600
(iii) Indirect tax	20
(iv) Depreciation	30
(v) Change in stock	(-) 50

Sol. Net Value Added at Factor Cost

$$= \text{Sales} + \text{Change in stock} - \text{Intermediate consumption} - \text{Depreciation} - \text{Indirect tax}$$

Or, Intermediate Consumption

$$\begin{aligned}
 &= \text{Sales} - \text{Net value added at factor cost} + \text{Change in stock} - \text{Depreciation} - \text{Indirect tax} \\
 &= ₹ 600 \text{ lakh} - ₹ 300 \text{ lakh} + (-) ₹ 50 \text{ lakh} - ₹ 30 \text{ lakh} - ₹ 20 \text{ lakh} \\
 &= ₹ 600 \text{ lakh} - ₹ 300 \text{ lakh} - ₹ 50 \text{ lakh} - ₹ 30 \text{ lakh} - ₹ 20 \text{ lakh} \\
 &= ₹ 200 \text{ lakh}
 \end{aligned}$$

Ans. Intermediate consumption = ₹ 200 lakh.

9. From the following data, find 'Net Value Added at Market Price':

Items	
(i) Output sold (units)	700
(ii) Price per unit of output (₹)	15
(iii) Goods and Service tax (₹)	1,200
(iv) Import duty (₹)	500
(v) Net change in stocks (₹)	(-) 800
(vi) Depreciation (₹)	500
(vii) Intermediate consumption (₹)	6,200

Sol. Net Value Added at Market Price

$$\begin{aligned} &= \text{Sales (Output sold} \times \text{Price per unit of output)} + \text{Net change in stocks} - \text{Intermediate consumption} \\ &\quad - \text{Depreciation} \\ &= (700 \times ₹ 15) + (-) ₹ 800 - ₹ 6,200 - ₹ 500 \\ &= ₹ 10,500 - ₹ 800 - ₹ 6,200 - ₹ 500 \\ &= ₹ 3,000 \end{aligned}$$

Ans. Net value added at market price = ₹ 3,000.

10. From the following data, find 'Change in Stock':

Items	(₹ in lakh)
(i) Intermediate consumption	10,000
(ii) Net value added at factor cost	17,600
(iii) Sales	30,000
(iv) Net indirect taxes	400
(v) Import duty	1,000
(vi) Consumption of fixed capital	3,000

Sol. Net Value Added at Factor Cost

$$= \text{Sales} + \text{Change in stock} - \text{Intermediate consumption} - \text{Consumption of fixed capital} - \text{Net indirect taxes}$$

Or, Change in Stock

$$\begin{aligned} &= \text{Net value added at factor cost} - \text{Sales} + \text{Intermediate consumption} + \text{Consumption of fixed capital} + \text{Net indirect taxes} \\ &= ₹ 17,600 \text{ lakh} - ₹ 30,000 \text{ lakh} + ₹ 10,000 \text{ lakh} + ₹ 3,000 \text{ lakh} + ₹ 400 \text{ lakh} \\ &= ₹ 1,000 \text{ lakh} \end{aligned}$$

Ans. Change in stock = ₹ 1,000 lakh.

11. Find 'Net Value Added at Factor Cost':

Items	(₹ in lakh)
(i) Sales	100
(ii) Closing stock	20
(iii) Excise	15
(iv) Opening stock	10
(v) Depreciation	12
(vi) Intermediate consumption	50

[CBSE Sample Paper 2013]

*Sol. Net Value Added at Factor Cost

$$\begin{aligned} &= \text{Sales} + \text{Closing stock} - \text{Opening stock} - \text{Intermediate consumption} - \text{Depreciation} - \text{Excise} \\ &= ₹ 100 \text{ lakh} + ₹ 20 \text{ lakh} - ₹ 10 \text{ lakh} - ₹ 50 \text{ lakh} - ₹ 12 \text{ lakh} - ₹ 15 \text{ lakh} \\ &= ₹ 33 \text{ lakh} \end{aligned}$$

Ans. Net value added at factor cost = ₹ 33 lakh.

*Item (vi) (in the answer) seems to be missing from the CBSE question. It is 'intermediate consumption = ₹ 50 lakh'.

12. Find Net Value Added at Factor Cost:

Items	(₹ in lakh)
(i) Durable use producer goods with a life span of 10 years	10
(ii) Single use producer goods	5
(iii) Sales	20
(iv) Unsold output produced during the year	2
(v) Taxes on production	1

[CBSE Delhi 2016]

Sol. Net Value Added at Factor Cost

$$\begin{aligned} &= \text{Sales} + \text{Change in stock} - \text{Single use producer goods} - \text{Depreciation} - \text{Taxes on production} \\ &= ₹ 20 \text{ lakh} + ₹ 2 \text{ lakh} - ₹ 5 \text{ lakh} - ₹ 1 \text{ lakh} - ₹ 1 \text{ lakh} \\ &= ₹ 15 \text{ lakh} \end{aligned}$$

Ans. Net value added at factor cost = ₹ 15 lakh.

[Note: Annual Depreciation = $\frac{\text{Value of durable use producer goods}}{\text{Life span of producer goods}} = \frac{₹ 10 \text{ lakh}}{10} = ₹ 1 \text{ lakh}.$]

13. Find Net Value Added at Market Price:

Items	(₹ in lakh)
(i) Fixed capital good with a life span of 5 years	15
(ii) Raw materials	6
(iii) Sales	25
(iv) Net change in stock	(-) 2
(v) Taxes on production	1

[CBSE Delhi 2016]

Sol. Net Value Added at Market Price

$$\begin{aligned} &= \text{Sales} + \text{Net change in stock} - \text{Raw materials} - \text{Depreciation} \\ &= ₹ 25 \text{ lakh} + (-) ₹ 2 \text{ lakh} - ₹ 6 \text{ lakh} - ₹ 3 \text{ lakh} \\ &= ₹ 25 \text{ lakh} - ₹ 2 \text{ lakh} - ₹ 6 \text{ lakh} - ₹ 3 \text{ lakh} \\ &= ₹ 14 \text{ lakh} \end{aligned}$$

Ans. Net value added at market price = ₹ 14 lakh.

[Note: Annual Depreciation = $\frac{\text{Value of fixed capital goods}}{\text{Life span of fixed capital goods}} = \frac{₹ 15 \text{ lakh}}{5} = ₹ 3 \text{ lakh}.$]

14. Find Gross Value Added at Market Price:

Items	(₹ in lakh)
(i) Depreciation	20
(ii) Domestic sales	200
(iii) Net change in stocks	(-) 10

(iv) Exports	10
(v) Single use producer goods	120

[CBSE Delhi 2016]

Sol. Gross Value Added at Market Price

$$\begin{aligned}
 &= \text{Domestic sales} + \text{Net change in stocks} - \text{Single use producer goods} + \text{Exports} \\
 &= ₹ 200 \text{ lakh} + (-) ₹ 10 \text{ lakh} - ₹ 120 \text{ lakh} + ₹ 10 \text{ lakh} \\
 &= ₹ 200 \text{ lakh} - ₹ 10 \text{ lakh} - ₹ 120 \text{ lakh} + ₹ 10 \text{ lakh} \\
 &= ₹ 80 \text{ lakh}
 \end{aligned}$$

Ans. Gross value added at market price = ₹ 80 lakh.

15. In an economy, following transactions took place. Calculate Value of Output and Value Added by firm B:

(i) Firm A sold to firm B goods of ₹ 80 crore; to firm C ₹ 50 crore; to household ₹ 30 crore and goods of value ₹ 10 crore remains unsold.

(ii) Firm B sold to firm C goods of ₹ 70 crore; to firm D ₹ 40 crore; goods of value ₹ 30 crore were exported and goods of value ₹ 5 crore was sold to government. [CBSE Sample Paper 2019]

Sol. Value of Output of Firm B = Sales to firm C + Sales to firm D + Exports + Sales to the government

$$\begin{aligned}
 &= ₹ 70 \text{ crore} + ₹ 40 \text{ crore} + ₹ 30 \text{ crore} + ₹ 5 \text{ crore} \\
 &= ₹ 145 \text{ crore}
 \end{aligned}$$

Value Added by Firm B = Value of output of firm B – Purchases from firm A

$$= ₹ 145 \text{ crore} - ₹ 80 \text{ crore} = ₹ 65 \text{ crore}$$

Ans. Value of output of firm B = ₹ 145 crore.

Value added by firm B = ₹ 65 crore.

Numericals related to Income Method

16. From the following data, calculate 'National Income':

Items	(₹ in crore)
(i) Compensation of employees	800
(ii) Rent	200
(iii) Wages and salaries	750
(iv) Net exports	(-) 30
(v) Net factor income from abroad	(-) 20
(vi) Profit	300
(vii) Interest	100
(viii) Depreciation	50
(ix) Remittances from abroad	80
(x) Taxes on profits	60

Sol. National Income (NNP_{FC})

$$\begin{aligned}
 &= \text{Compensation of employees} + \text{Rent} + \text{Profit} + \text{Interest} + \text{Net factor income from abroad [Income Method]} \\
 &= ₹ 800 \text{ crore} + ₹ 200 \text{ crore} + ₹ 300 \text{ crore} + ₹ 100 \text{ crore} + (-) ₹ 20 \text{ crore} \\
 &= ₹ 800 \text{ crore} + ₹ 200 \text{ crore} + ₹ 300 \text{ crore} + ₹ 100 \text{ crore} - ₹ 20 \text{ crore} \\
 &= ₹ 1,380 \text{ crore}
 \end{aligned}$$

Ans. National income = ₹ 1,380 crore.

17. Calculate 'Net Domestic Product at Factor Cost' from the following:

Items	(₹ in crore)
(i) Dividends	100
(ii) Contribution to social security schemes by employers	200
(iii) Undistributed profits	20
(iv) Rent	100
(v) Interest paid by the production units	130
(vi) Corporation tax	50
(vii) Wages and salaries	1,000
(viii) Net factor income from abroad	10

Sol. Net Domestic Product at Factor Cost (NDP_{FC})

$$\begin{aligned}
 &= \text{Wages and salaries} + \text{Contribution to social security schemes by employers} + \text{Rent} + \text{Interest} \\
 &\quad + \text{Dividends} + \text{Undistributed profits} + \text{Corporation tax} \\
 &= ₹ 1,000 \text{ crore} + ₹ 200 \text{ crore} + ₹ 100 \text{ crore} + ₹ 130 \text{ crore} + ₹ 100 \text{ crore} + ₹ 20 \text{ crore} + ₹ 50 \text{ crore} \\
 &= ₹ 1,600 \text{ crore}
 \end{aligned}$$

Ans. Net domestic product at factor cost = ₹ 1,600 crore.

18. Find 'Wages and Salaries' from the following data:

Items	(₹ in crore)
(i) Royalty	50
(ii) Rent	100
(iii) Interest	400
(iv) Net indirect tax	70
(v) Net national product at market price	1,700
(vi) Profit	300
(vii) Net factor income to abroad	(-) 20
(viii) Consumption of fixed capital	120
(ix) Social security contribution by employers	60
(x) Social security contribution by employees	40

Sol. Net National Product at Market Price

$$\begin{aligned}
 &= \text{Wages and salaries} + \text{Social security contribution by employers} + \text{Rent} + \text{Royalty} + \text{Interest} \\
 &\quad + \text{Profit} + \text{Net indirect tax} - \text{Net factor income to abroad}
 \end{aligned}$$

Or, Wages and Salaries

$$\begin{aligned}
 &= \text{Net national product at market price} - \text{Social security contribution by employers} - \text{Rent} - \text{Royalty} \\
 &\quad - \text{Interest} - \text{Profit} - \text{Net indirect tax} + \text{Net factor income to abroad} \\
 &= ₹ 1,700 \text{ crore} - ₹ 60 \text{ crore} - ₹ 100 \text{ crore} - ₹ 50 \text{ crore} - ₹ 400 \text{ crore} - ₹ 300 \text{ crore} - ₹ 70 \text{ crore} \\
 &\quad + (-) ₹ 20 \text{ crore} \\
 &= ₹ 1,700 \text{ crore} - ₹ 60 \text{ crore} - ₹ 100 \text{ crore} - ₹ 50 \text{ crore} - ₹ 400 \text{ crore} - ₹ 300 \text{ crore} - ₹ 70 \text{ crore} \\
 &\quad - ₹ 20 \text{ crore} \\
 &= ₹ 700 \text{ crore}
 \end{aligned}$$

Ans. Wages and salaries = ₹ 700 crore.

19. From the following data, calculate 'Operating Surplus':

Items	(₹ in crore)
(i) Net indirect tax	300
(ii) Gross domestic product at market price	3,120

(iii) Employees contribution to social security schemes	200
(iv) Compensation of employees	1,600
(v) Rent	200
(vi) Interest	150
(vii) Net factor income from abroad	(-) 20
(viii) Depreciation	200

Sol. Gross domestic product at market price

$$= \text{Compensation of employees} + \text{Operating surplus} + \text{Depreciation} + \text{Net indirect tax}$$

Or, Operating Surplus

$$= \text{Gross domestic product at market price} - \text{Compensation of employees} - \text{Depreciation} - \text{Net indirect tax}$$

$$= ₹ 3,120 \text{ crore} - ₹ 1,600 \text{ crore} - ₹ 200 \text{ crore} - ₹ 300 \text{ crore}$$

$$= ₹ 1,020 \text{ crore}$$

Ans. Operating surplus = ₹ 1,020 crore.

20. Calculate 'National Income' from the following data:

Items	(₹ in crore)
(i) Net exports	(-) 300
(ii) Compensation of employees	6,000
(iii) Rent	400
(iv) Dividend	200
(v) Consumption of fixed capital	300
(vi) Change in stock	50
(vii) Profits	800
(viii) Net factor income to abroad	(-) 80
(ix) Net indirect taxes	600
(x) Interest	500

Sol. National Income

$$= \text{Compensation of employees} + \text{Rent} + \text{Interest} + \text{Profits} - \text{Net factor income to abroad}$$

$$= ₹ 6,000 \text{ crore} + ₹ 400 \text{ crore} + ₹ 500 \text{ crore} + ₹ 800 \text{ crore} - (-) ₹ 80 \text{ crore}$$

$$= ₹ 6,000 \text{ crore} + ₹ 400 \text{ crore} + ₹ 500 \text{ crore} + ₹ 800 \text{ crore} + ₹ 80 \text{ crore}$$

$$= ₹ 7,780 \text{ crore}$$

Ans. National income = ₹ 7,780 crore.

21. From the following data, calculate 'Mixed Income of Self-employed':

Items	(₹ in crore)
(i) Profit	500
(ii) Rent	200
(iii) Consumption of fixed capital	100
(iv) Compensation of employees	1,000
(v) National income	2,700
(vi) Corporation tax	200
(vii) Net retained earnings of private enterprises	150
(viii) Net factor income from abroad	(-) 50
(ix) Interest	250
(x) Net indirect taxes	160

Sol. National Income

= Compensation of employees + Operating surplus (Rent + Interest + Profit) + Mixed income of self-employed + Net factor income from abroad

Or, Mixed Income of Self-employed

= National Income – Compensation of employees – Operating surplus (Profit + Rent + Interest) – Net factor income from abroad

= ₹ 2,700 crore – ₹ 1,000 crore – (₹ 200 crore + ₹ 250 crore + ₹ 500 crore) – (–) ₹ 50 crore

= ₹ 2,700 crore – ₹ 1,000 crore – ₹ 950 crore + ₹ 50 crore

= ₹ 800 crore

Ans. Mixed income of self-employed = ₹ 800 crore.

22. Calculate 'Gross National Product at Market Price':

Items	(₹ in crore)
(i) Rent	100
(ii) Net current transfers to rest of the world	30
(iii) Social security contributions by employers	47
(iv) Mixed income	600
(v) Gross domestic capital formation	140
(vi) Royalty	20
(vii) Interest	110
(viii) Compensation of employees	500
(ix) Net domestic capital formation	120
(x) Net factor income from abroad	(–) 10
(xi) Net indirect tax	150
(xii) Profit	200

[CBSE Delhi 2015]

Sol. Gross National Product at Market Price

= Compensation of employees + Rent + Royalty + Interest + Profit + Mixed income + Consumption of fixed capital (Gross domestic capital formation – Net domestic capital formation) + Net indirect tax + Net factor income from abroad

= ₹ 500 crore + ₹ 100 crore + ₹ 20 crore + ₹ 110 crore + ₹ 200 crore + ₹ 600 crore + (₹ 140 crore – ₹ 120 crore) + ₹ 150 crore + (–) ₹ 10 crore

= ₹ 500 crore + ₹ 100 crore + ₹ 20 crore + ₹ 110 crore + ₹ 200 crore + ₹ 600 crore + ₹ 20 crore + ₹ 150 crore – ₹ 10 crore

= ₹ 1,690 crore

Ans. Gross national product at market price = ₹ 1,690 crore.

23. Calculate the 'National Income':

Items	(₹ in crore)
(i) Rent	200
(ii) Net factor income to abroad	10
(iii) National debt interest	15
(iv) Wages and salaries	700
(v) Current transfers from government	10
(vi) Undistributed profits	20
(vii) Corporation tax	30

(viii) Interest	150
(ix) Social security contributions by employers	100
(x) Net domestic product accruing to government	250
(xi) Net current transfers to rest of the world	5
(xii) Dividend	50

[CBSE (AI) 2015]

Sol. National Income

$$\begin{aligned}
 &= \text{Wages and salaries} + \text{Social security contributions by employers} + \text{Rent} + \text{Interest} + \text{Undistributed profits} + \text{Corporation tax} + \text{Dividend} - \text{Net factor income to abroad} \\
 &= ₹ 700 \text{ crore} + ₹ 100 \text{ crore} + ₹ 200 \text{ crore} + ₹ 150 \text{ crore} + ₹ 20 \text{ crore} + ₹ 30 \text{ crore} + ₹ 50 \text{ crore} \\
 &\quad - ₹ 10 \text{ crore} \\
 &= ₹ 1,240 \text{ crore}
 \end{aligned}$$

Ans. National income = ₹ 1,240 crore.

24. Calculate the Gross National Product at Market Price:

Items	(₹ in crore)
(i) Wages and salaries	800
(ii) Personal tax	150
(iii) Operating surplus	200
(iv) Undistributed profits	10
(v) Social security contributions by employers	100
(vi) Corporate tax	50
(vii) Net factor income to abroad	(-) 20
(viii) Personal disposable income	1,200
(ix) Net indirect tax	70
(x) Consumption of fixed capital	30
(xi) Mixed income of self-employed	500
(xii) Royalty	9

[CBSE (F) 2015]

Sol. Gross National Product at Market Price

$$\begin{aligned}
 &= \text{Wages and salaries} + \text{Social security contributions by employers} + \text{Operating surplus} + \text{Mixed income of self-employed} + \text{Consumption of fixed capital} + \text{Net indirect tax} - \text{Net factor income to abroad} \\
 &= ₹ 800 \text{ crore} + ₹ 100 \text{ crore} + ₹ 200 \text{ crore} + ₹ 500 \text{ crore} + ₹ 30 \text{ crore} + ₹ 70 \text{ crore} - (-) ₹ 20 \text{ crore} \\
 &= ₹ 800 \text{ crore} + ₹ 100 \text{ crore} + ₹ 200 \text{ crore} + ₹ 500 \text{ crore} + ₹ 30 \text{ crore} + ₹ 70 \text{ crore} + ₹ 20 \text{ crore} \\
 &= ₹ 1,720 \text{ crore}
 \end{aligned}$$

Ans. Gross national product at market price = ₹ 1,720 crore.

25. Calculate Net National Product at Market Price:

Items	(₹ in crore)
(i) Net factor income to abroad	(-) 10
(ii) Net current transfers to abroad	5
(iii) Consumption of fixed capital	40
(iv) Compensation of employees	700
(v) Corporate tax	30
(vi) Undistributed profits	10

(vii) Interest	90
(viii) Rent	100
(ix) Dividends	20
(x) Net indirect tax	110
(xi) Social security contributions by employees	11

[CBSE (F) 2015]

Sol. Net National Product at Market Price

$$\begin{aligned}
 &= \text{Compensation of employees} + \text{Rent} + \text{Interest} + \text{Corporate tax} + \text{Undistributed profits} + \text{Dividends} \\
 &\quad + \text{Net indirect tax} - \text{Net factor income to abroad} \\
 &= ₹ 700 \text{ crore} + ₹ 100 \text{ crore} + ₹ 90 \text{ crore} + ₹ 30 \text{ crore} + ₹ 10 \text{ crore} + ₹ 20 \text{ crore} + ₹ 110 \text{ crore} - (-) ₹ 10 \\
 &\quad \text{crore} \\
 &= ₹ 700 \text{ crore} + ₹ 100 \text{ crore} + ₹ 90 \text{ crore} + ₹ 30 \text{ crore} + ₹ 10 \text{ crore} + ₹ 20 \text{ crore} + ₹ 110 \text{ crore} \\
 &\quad + ₹ 10 \text{ crore} \\
 &= ₹ 1,070 \text{ crore}
 \end{aligned}$$

Ans. Net national product at market price = ₹ 1,070 crore.

26. Find National Income:

Items	(₹ in crore)
(i) Wages and salaries	1,000
(ii) Net current transfers to abroad	20
(iii) Net factor income paid to abroad	10
(iv) Profit	400
(v) National debt interest	120
(vi) Social security contributions by employers	100
(vii) Current transfers from government	60
(viii) National income accruing to government	150
(ix) Rent	200
(x) Interest	300
(xi) Royalty	50

[CBSE Delhi 2016]

Sol. National Income

$$\begin{aligned}
 &= \text{Wages and salaries} + \text{Social security contributions by employers} + \text{Rent} + \text{Royalty} + \text{Interest} + \text{Profit} \\
 &\quad - \text{Net factor income paid to abroad} \\
 &= ₹ 1,000 \text{ crore} + ₹ 100 \text{ crore} + ₹ 200 \text{ crore} + ₹ 50 \text{ crore} + ₹ 300 \text{ crore} + ₹ 400 \text{ crore} - ₹ 10 \text{ crore} \\
 &= ₹ 2,040 \text{ crore}
 \end{aligned}$$

Ans. National income = ₹ 2,040 crore.

27. Find Net Domestic Product at Factor Cost:

Items	(₹ in crore)
(i) Rent	200
(ii) Net current transfers to abroad	10
(iii) National debt interest	60
(iv) Corporate tax	100
(v) Compensation of employees	900
(vi) Current transfers by government	150
(vii) Interest	400

(viii) Undistributed profits	50
(ix) Dividend	250
(x) Net factor income to abroad	(-) 10
(xi) Income accruing to government	120

[CBSE Delhi 2016]

Sol. Net Domestic Product at Factor Cost

$$\begin{aligned}
 &= \text{Compensation of employees} + \text{Rent} + \text{Interest} + \text{Corporate tax} + \text{Undistributed profits} + \text{Dividend} \\
 &= ₹ 900 \text{ crore} + ₹ 200 \text{ crore} + ₹ 400 \text{ crore} + ₹ 100 \text{ crore} + ₹ 50 \text{ crore} + ₹ 250 \text{ crore} \\
 &= ₹ 1,900 \text{ crore}
 \end{aligned}$$

Ans. Net domestic product at factor cost = ₹ 1,900 crore.

28. Find Net National Product at Market Price:

Items	(₹ in crore)
(i) Personal taxes	200
(ii) Wage and salaries	1,200
(iii) Undistributed profit	50
(iv) Rent	300
(v) Corporation tax	200
(vi) Private income	2,000
(vii) Interest	400
(viii) Net indirect tax	300
(ix) Net factor income to abroad	20
(x) Profit	500
(xi) Social security contributions by employers	250

[CBSE Delhi 2016]

Sol. Net National Product at Market Price

$$\begin{aligned}
 &= \text{Wages and salaries} + \text{Social security contributions by employers} + \text{Rent} + \text{Interest} + \text{Profit} + \text{Net} \\
 &\quad \text{indirect tax} - \text{Net factor income to abroad} \\
 &= ₹ 1,200 \text{ crore} + ₹ 250 \text{ crore} + ₹ 300 \text{ crore} + ₹ 400 \text{ crore} + ₹ 500 \text{ crore} + ₹ 300 \text{ crore} - ₹ 20 \text{ crore} \\
 &= ₹ 2,930 \text{ crore}
 \end{aligned}$$

Ans. Net national product at market price = ₹ 2,930 crore.

29. Calculate National Income:

Items	(₹ in crore)
(i) Compensation of employees	2,000
(ii) Rent	400
(iii) Profit	900
(iv) Dividend	100
(v) Interest	500
(vi) Mixed income of self-employed	7,000
(vii) Net factor income to abroad	50
(viii) Net exports	60
(ix) Net indirect taxes	300
(x) Depreciation	150
(xi) Net current transfers to abroad	30

[CBSE (AI) 2017]

Sol. National Income

$$\begin{aligned} &= \text{Compensation of employees} + \text{Rent} + \text{Interest} + \text{Profit} + \text{Mixed income of self-employed} - \text{Net factor income to abroad} \\ &= ₹ 2,000 \text{ crore} + ₹ 400 \text{ crore} + ₹ 500 \text{ crore} + ₹ 900 \text{ crore} + ₹ 7,000 \text{ crore} - ₹ 50 \text{ crore} \\ &= ₹ 10,750 \text{ crore} \end{aligned}$$

Ans. National income = ₹ 10,750 crore.

30. Calculate the Net National Product at Market Price:

Items	(₹ in crore)
(i) Mixed income of self-employed	8,000
(ii) Depreciation	200
(iii) Profit	1,000
(iv) Rent	600
(v) Interest	700
(vi) Compensation of employees	3,000
(vii) Net indirect taxes	500
(viii) Net factor income to abroad	60
(ix) Net exports	(-) 50
(x) Net current transfers to abroad	20

[CBSE (AI) 2017]

Sol. Net National Product at Market Price

$$\begin{aligned} &= \text{Compensation of employees} + \text{Rent} + \text{Interest} + \text{Profit} + \text{Mixed income of self-employed} + \text{Net indirect taxes} - \text{Net factor income to abroad} \\ &= ₹ 3,000 \text{ crore} + ₹ 600 \text{ crore} + ₹ 700 \text{ crore} + ₹ 1,000 \text{ crore} + ₹ 8,000 \text{ crore} + ₹ 500 \text{ crore} - ₹ 60 \text{ crore} \\ &= ₹ 13,740 \text{ crore} \end{aligned}$$

Ans. Net national product at market price = ₹ 13,740 crore.

31. Calculate the Gross National Product at Market Price:

Items	(₹ in crore)
(i) Compensation of employees	2,500
(ii) Profit	700
(iii) Mixed income of self-employed	7,500
(iv) Government final consumption expenditure	3,000
(v) Rent	400
(vi) Interest	350
(vii) Net factor income from abroad	50
(viii) Net current transfers to abroad	100
(ix) Net indirect taxes	150
(x) Depreciation	70
(xi) Net exports	40

[CBSE (AI) 2017]

Sol. Gross National Product at Market Price

$$\begin{aligned} &= \text{Compensation of employees} + \text{Rent} + \text{Interest} + \text{Profit} + \text{Mixed income of self-employed} \\ &\quad + \text{Depreciation} + \text{Net indirect taxes} + \text{Net factor income from abroad} \end{aligned}$$

$$\begin{aligned}
&= ₹ 2,500 \text{ crore} + ₹ 400 \text{ crore} + ₹ 350 \text{ crore} + ₹ 700 \text{ crore} + ₹ 7,500 \text{ crore} + ₹ 70 \text{ crore} + ₹ 150 \text{ crore} \\
&\quad + ₹ 50 \text{ crore} \\
&= ₹ 11,720 \text{ crore}
\end{aligned}$$

Ans. Gross national product at market price = ₹ 11,720 crore.

32. Calculate National Income:

Items	(₹ in crore)
(i) Profit	1,000
(ii) Mixed income of self-employed	15,000
(iii) Dividends	200
(iv) Interest	400
(v) Compensation of employees	7,000
(vi) Net factor income to abroad	100
(vii) Consumption of fixed capital	400
(viii) Net exports	(-) 200
(ix) Net indirect taxes	800
(x) Net current transfers to rest of the world	40
(xi) Rent	500

[CBSE (F) 2017]

Sol. National Income

$$\begin{aligned}
&= \text{Compensation of employees} + \text{Rent} + \text{Interest} + \text{Profit} + \text{Mixed income of self-employed} - \text{Net} \\
&\quad \text{factor income to abroad} \\
&= ₹ 7,000 \text{ crore} + ₹ 500 \text{ crore} + ₹ 400 \text{ crore} + ₹ 1,000 \text{ crore} + ₹ 15,000 \text{ crore} - ₹ 100 \text{ crore} \\
&= ₹ 23,800 \text{ crore}
\end{aligned}$$

Ans. National income = ₹ 23,800 crore.

33. Calculate Net National Product at Market Price:

Items	(₹ in thousand crore)
(i) Compensation of employees	250
(ii) Mixed income of self-employed	600
(iii) Profit	80
(iv) Rent	30
(v) Interest	40
(vi) Net factor income to abroad	(-) 10
(vii) Net exports	15
(viii) Consumption of fixed capital	20
(ix) Net indirect taxes	10
(x) Net current transfers to abroad	8

[CBSE (F) 2017]

Sol. Net National Product at Market Price

$$\begin{aligned}
&= \text{Compensation of employees} + \text{Rent} + \text{Interest} + \text{Profit} + \text{Mixed income of self-employed} - \text{Net} \\
&\quad \text{factor income to abroad} + \text{Net indirect taxes} \\
&= ₹ 250 \text{ thousand crore} + ₹ 30 \text{ thousand crore} + ₹ 40 \text{ thousand crore} + ₹ 80 \text{ thousand crore} \\
&\quad + ₹ 600 \text{ thousand crore} - (-) ₹ 10 \text{ thousand crore} + ₹ 10 \text{ thousand crore} \\
&= ₹ 250 \text{ thousand crore} + ₹ 30 \text{ thousand crore} + ₹ 40 \text{ thousand crore} + ₹ 80 \text{ thousand crore} \\
&\quad + ₹ 600 \text{ thousand crore} + ₹ 10 \text{ thousand crore} + ₹ 10 \text{ thousand crore} \\
&= ₹ 1,020 \text{ thousand crore}
\end{aligned}$$

Ans. Net national product at market price = ₹ 1,020 thousand crore.

34. Calculate National Income:

Items	(₹ in crore)
(i) Compensation of employees	2,000
(ii) Profit	800
(iii) Rent	300
(iv) Interest	250
(v) Mixed income of self-employed	7,000
(vi) Net current transfers to abroad	200
(vii) Net exports	(-) 100
(viii) Net indirect taxes	1,500
(ix) Net factor income to abroad	60
(x) Consumption of fixed capital	120

[CBSE (F) 2017]

Sol. National Income

$$\begin{aligned}
 &= \text{Compensation of employees} + \text{Rent} + \text{Interest} + \text{Profit} + \text{Mixed income of self-employed} - \text{Net factor income to abroad} \\
 &= ₹ 2,000 \text{ crore} + ₹ 300 \text{ crore} + ₹ 250 \text{ crore} + ₹ 800 \text{ crore} + ₹ 7,000 \text{ crore} - ₹ 60 \text{ crore} \\
 &= ₹ 10,290 \text{ crore}
 \end{aligned}$$

Ans. National income = ₹ 10,290 crore.

35. Calculate (a) Operating Surplus, and (b) Domestic Income:

Items	(₹ in crore)
(i) Compensation of employees	2,000
(ii) Rent and interest	800
(iii) Indirect taxes	120
(iv) Corporation tax	460
(v) Consumption of fixed capital	100
(vi) Subsidies	20
(vii) Dividend	940
(viii) Undistributed profits	300
(ix) Net factor income to abroad	150
(x) Mixed income	200

[CBSE 2018]

Sol. (a) Operating Surplus

$$\begin{aligned}
 &= \text{Rent and Interest} + \text{Undistributed profits} + \text{Corporation tax} + \text{Dividend} \\
 &= ₹ 800 \text{ crore} + ₹ 300 \text{ crore} + ₹ 460 \text{ crore} + ₹ 940 \text{ crore} \\
 &= ₹ 2,500 \text{ crore}
 \end{aligned}$$

(b) Domestic Income

$$\begin{aligned}
 &= \text{Compensation of employees} + \text{Operating surplus} + \text{Mixed income} \\
 &= ₹ 2,000 \text{ crore} + ₹ 2,500 \text{ crore} + ₹ 200 \text{ crore} \\
 &= ₹ 4,700 \text{ crore}
 \end{aligned}$$

Ans. (a) Operating surplus = ₹ 2,500 crore.

(b) Domestic income = ₹ 4,700 crore.

36. Calculate the value of "Rent" from the following data:

Items	(₹ in crore)
(i) Gross domestic product at market price	18,000
(ii) Mixed income of self-employed	7,000
(iii) Subsidies	250
(iv) Interest	800
(v) Rent	?
(vi) Profit	975
(vii) Compensation of employees	6,000
(viii) Consumption of fixed capital	1,000
(ix) Indirect tax	2,000

[CBSE 2019 (58/4/1)]

Sol. Rent

$$\begin{aligned}
 &= \text{Gross domestic product at market price} - \text{Compensation of employees} - \text{Interest} - \text{Profit} \\
 &\quad - \text{Mixed income of self-employed} - \text{Consumption of fixed capital} - \text{Indirect tax} + \text{Subsidies} \\
 &= ₹ 18,000 \text{ crore} - ₹ 6,000 \text{ crore} - ₹ 800 \text{ crore} - ₹ 975 \text{ crore} - ₹ 7,000 \text{ crore} - ₹ 1,000 \text{ crore} \\
 &\quad - ₹ 2,000 \text{ crore} + ₹ 250 \text{ crore} \\
 &= ₹ 475 \text{ crore}
 \end{aligned}$$

Ans. Rent = ₹ 475 crore.

37. Calculate value of "Interest" from the following data:

Items	(₹ in crore)
(i) Indirect tax	1,500
(ii) Subsidies	700
(iii) Profits	1,100
(iv) Consumption of fixed capital	700
(v) Gross domestic product at market price	17,500
(vi) Compensation of employees	9,300
(vii) Interest	?
(viii) Mixed income of self-employed	3,500
(ix) Rent	800

[CBSE 2019 (58/4/2)]

Sol. Interest

$$\begin{aligned}
 &= \text{Gross domestic product at market price} - \text{Compensation of employees} - \text{Rent} - \text{Profits} - \text{Mixed} \\
 &\quad \text{income of self-employed} - \text{Consumption of fixed capital} - \text{Indirect tax} + \text{Subsidies} \\
 &= ₹ 17,500 \text{ crore} - ₹ 9,300 \text{ crore} - ₹ 800 \text{ crore} - ₹ 1,100 \text{ crore} - ₹ 3,500 \text{ crore} - ₹ 700 \text{ crore} \\
 &\quad - ₹ 1,500 \text{ crore} + ₹ 700 \text{ crore} \\
 &= ₹ 1,300 \text{ crore}
 \end{aligned}$$

Ans. Interest = ₹ 1,300 crore.

38. Calculate the value of "Mixed Income of Self-employed" from the following data:

Items	(₹ in crore)
(i) Compensation of employees	17,300
(ii) Interest	1,200

(iii) Consumption of fixed capital	1,100
(iv) Mixed income of self-employed	?
(v) Subsidies	750
(vi) Gross domestic product at market price	27,500
(vii) Indirect taxes	2,100
(viii) Profits	1,800
(ix) Rent	2,000

[CBSE 2019 (58/4/3)]

Sol. Mixed Income of Self-employed

$$\begin{aligned}
 &= \text{Gross domestic product at market price} - \text{Compensation of employees} - \text{Rent} - \text{Interest} \\
 &\quad - \text{Profits} - \text{Consumption of fixed capital} - \text{Indirect tax} + \text{Subsidies} \\
 &= ₹ 27,500 \text{ crore} - ₹ 17,300 \text{ crore} - ₹ 2,000 \text{ crore} - ₹ 1,200 \text{ crore} - ₹ 1,800 \text{ crore} - ₹ 1,100 \text{ crore} \\
 &\quad - ₹ 2,100 \text{ crore} + ₹ 750 \text{ crore} \\
 &= ₹ 2,750 \text{ crore}
 \end{aligned}$$

Ans. Mixed income of self-employed = ₹ 2,750 crore.

Numericals related to Expenditure Method

39. Calculate 'National Income' from the following data:

Items	(₹ in crore)
(i) Private final consumption expenditure	600
(ii) Profit	100
(iii) Government final consumption expenditure	700
(iv) Net indirect taxes	50
(v) Gross domestic capital formation	250
(vi) Change in stock	50
(vii) Net factor income from abroad	(-) 50
(viii) Consumption of fixed capital	70
(ix) Net imports	30

Sol. National Income (NNP_{FC})

$$\begin{aligned}
 &= \text{Private final consumption expenditure} + \text{Government final consumption expenditure} + \text{Gross} \\
 &\quad \text{domestic capital formation} - \text{Net imports} - \text{Consumption of fixed capital} - \text{Net indirect taxes} \\
 &\quad + \text{Net factor income from abroad} \\
 &= ₹ 600 \text{ crore} + ₹ 700 \text{ crore} + ₹ 250 \text{ crore} - ₹ 30 \text{ crore} - ₹ 70 \text{ crore} - ₹ 50 \text{ crore} + (-) ₹ 50 \text{ crore} \\
 &= ₹ 600 \text{ crore} + ₹ 700 \text{ crore} + ₹ 250 \text{ crore} - ₹ 30 \text{ crore} - ₹ 70 \text{ crore} - ₹ 50 \text{ crore} - ₹ 50 \text{ crore} \\
 &= ₹ 1,350 \text{ crore}
 \end{aligned}$$

Ans. National income = ₹ 1,350 crore.

40. Calculate 'Private Final Consumption Expenditure' from the following:

Items	(₹ in lakh)
(i) Net imports	60
(ii) Net current transfers to abroad	(-) 10
(iii) Net domestic fixed capital formation	300
(iv) Government final consumption expenditure	200

(v) National income	1,050
(vi) Consumption of fixed capital	70
(vii) Net change in stocks	30
(viii) Net factor income to abroad	20
(ix) Net indirect tax	100

Sol. National Income

$$= \text{Private final consumption expenditure} + \text{Government final consumption expenditure} + \text{Net domestic fixed capital formation} + \text{Net change in stocks} - \text{Net imports} - \text{Net indirect tax} - \text{Net factor income to abroad}$$

Or, Private Final Consumption Expenditure

$$= \text{National income} - \text{Government final consumption expenditure} - \text{Net domestic fixed capital formation} - \text{Net change in stocks} + \text{Net imports} + \text{Net indirect tax} + \text{Net factor income from abroad}$$

$$= ₹ 1,050 \text{ lakh} - ₹ 200 \text{ lakh} - ₹ 300 \text{ lakh} - ₹ 30 \text{ lakh} + ₹ 60 \text{ lakh} + ₹ 100 \text{ lakh} + ₹ 20 \text{ lakh}$$

$$= ₹ 700 \text{ lakh}$$

Ans. Private final consumption expenditure = ₹ 700 lakh.

41. Calculate 'Government Final Consumption Expenditure' from the following data:

Items	(₹ in crore)
(i) National income	930
(ii) Net domestic fixed capital formation	100
(iii) Net imports	(-) 20
(iv) Net indirect tax	5
(v) Net current transfers from abroad	15
(vi) Private final consumption expenditure	600
(vii) Change in stocks	10
(viii) Net factor income from abroad	5
(ix) Net factor income from abroad	5
(x) Gross domestic fixed capital formation	125

Sol. National Income

$$= \text{Private final consumption expenditure} + \text{Government final consumption expenditure} + \text{Net domestic fixed capital formation} + \text{Change in stocks} - \text{Net imports} - \text{Net indirect tax} + \text{Net factor income from abroad}$$

Or, Government Final Consumption Expenditure

$$= \text{National income} - \text{Private final consumption expenditure} - \text{Net domestic fixed capital formation} - \text{Change in stocks} + \text{Net imports} + \text{Net indirect tax} - \text{Net factor income from abroad}$$

$$= ₹ 930 \text{ crore} - ₹ 600 \text{ crore} - ₹ 100 \text{ crore} - ₹ 10 \text{ crore} + (-) ₹ 20 \text{ crore} + ₹ 5 \text{ crore} - ₹ 5 \text{ crore}$$

$$= ₹ 930 \text{ crore} - ₹ 600 \text{ crore} - ₹ 100 \text{ crore} - ₹ 10 \text{ crore} - ₹ 20 \text{ crore} + ₹ 5 \text{ crore} - ₹ 5 \text{ crore}$$

$$= ₹ 200 \text{ crore}$$

Ans. Government final consumption expenditure = ₹ 200 crore.

42. Find out 'Gross Domestic Capital Formation' from the following data:

Items	(₹ in crore)
(i) Net imports	(-) 10
(ii) National income	770
(iii) Private final consumption expenditure	600

(iv) Consumption of fixed capital	60
(v) Factor income from abroad	10
(vi) Government final consumption expenditure	200
(vii) Net factor income to abroad	20
(viii) Net current transfers to abroad	30
(ix) Net indirect taxes	70

Sol. National Income

$$= \text{Private final consumption expenditure} + \text{Government final consumption expenditure} + \text{Gross domestic capital formation} - \text{Net imports} - \text{Consumption of fixed capital} - \text{Net indirect taxes} - \text{Net factor income to abroad}$$

Or, Gross Domestic Capital Formation

$$= \text{National income} - \text{Private final consumption expenditure} - \text{Government final consumption expenditure} + \text{Net imports} + \text{Consumption of fixed capital} + \text{Net indirect taxes} + \text{Net factor income to abroad}$$

$$= ₹ 770 \text{ crore} - ₹ 600 \text{ crore} - ₹ 200 \text{ crore} + (-) ₹ 10 \text{ crore} + ₹ 60 \text{ crore} + ₹ 70 \text{ crore} + ₹ 20 \text{ crore}$$

$$= ₹ 770 \text{ crore} - ₹ 600 \text{ crore} - ₹ 200 \text{ crore} - ₹ 10 \text{ crore} + ₹ 60 \text{ crore} + ₹ 70 \text{ crore} + ₹ 20 \text{ crore}$$

$$= ₹ 110 \text{ crore}$$

Ans. Gross domestic capital formation = ₹ 110 crore.

43. Calculate 'National Income':

Items	(₹ in crore)
(i) Personal tax	80
(ii) Private final consumption expenditure	600
(iii) Undistributed profits	30
(iv) Private income	650
(v) Government final consumption expenditure	100
(vi) Corporate tax	50
(vii) Net domestic fixed capital formation	70
(viii) Net indirect tax	60
(ix) Depreciation	14
(x) Change in stocks	(-) 10
(xi) Net imports	20
(xii) Net factor income to abroad	10

[CBSE Delhi 2015]

Sol. National Income

$$= \text{Private final consumption expenditure} + \text{Government final consumption expenditure} + \text{Net domestic fixed capital formation} + \text{Change in stocks} - \text{Net imports} - \text{Net indirect tax} - \text{Net factor income to abroad}$$

$$= ₹ 600 \text{ crore} + ₹ 100 \text{ crore} + ₹ 70 \text{ crore} + (-) ₹ 10 \text{ crore} - ₹ 20 \text{ crore} - ₹ 60 \text{ crore} - ₹ 10 \text{ crore}$$

$$= ₹ 600 \text{ crore} + ₹ 100 \text{ crore} + ₹ 70 \text{ crore} - ₹ 10 \text{ crore} - ₹ 20 \text{ crore} - ₹ 60 \text{ crore} - ₹ 10 \text{ crore}$$

$$= ₹ 670 \text{ crore}$$

Ans. National income = ₹ 670 crore.

44. Calculate 'Net Domestic Product at Factor Cost':

Items	(₹ in crore)
(i) Net current transfers to abroad	15
(ii) Private final consumption expenditure	800
(iii) Net imports	(-) 20
(iv) Net domestic capital formation	100
(v) Net factor income to abroad	10
(vi) Depreciation	50
(vii) Change in stocks	17
(viii) Net indirect tax	120
(ix) Government final consumption expenditure	200
(x) Exports	30

[CBSE Delhi 2015]

Sol. Net Domestic Product at Factor Cost

$$\begin{aligned}
 &= \text{Private final consumption expenditure} + \text{Government final consumption expenditure} + \text{Net domestic capital formation} - \text{Net imports} - \text{Net indirect tax} \\
 &= ₹ 800 \text{ crore} + ₹ 200 \text{ crore} + ₹ 100 \text{ crore} - (-) ₹ 20 \text{ crore} - ₹ 120 \text{ crore} \\
 &= ₹ 800 \text{ crore} + ₹ 200 \text{ crore} + ₹ 100 \text{ crore} + ₹ 20 \text{ crore} - ₹ 120 \text{ crore} \\
 &= ₹ 1,000 \text{ crore}
 \end{aligned}$$

Ans. Net domestic product at factor cost = ₹ 1,000 crore.

45. Calculate 'Net National Product at Market Price':

Items	(₹ in crore)
(i) Transfer payments by government	7
(ii) Government final consumption expenditure	50
(iii) Net imports	(-) 10
(iv) Net domestic fixed capital formation	60
(v) Private final consumption expenditure	300
(vi) Private income	280
(vii) Net factor income to abroad	(-) 5
(viii) Closing stock	8
(ix) Opening stock	8
(x) Depreciation	12
(xi) Corporate tax	60
(xii) Retained earnings of corporations	20

[CBSE (AI) 2015]

Sol. Net National Product at Market Price

$$\begin{aligned}
 &= \text{Private final consumption expenditure} + \text{Government final consumption expenditure} + \text{Net domestic fixed capital formation} + \text{Closing stock} - \text{Opening stock} - \text{Net imports} - \text{Net factor income to abroad} \\
 &= ₹ 300 \text{ crore} + ₹ 50 \text{ crore} + ₹ 60 \text{ crore} + ₹ 8 \text{ crore} - ₹ 8 \text{ crore} - (-) ₹ 10 \text{ crore} - (-) ₹ 5 \text{ crore} \\
 &= ₹ 300 \text{ crore} + ₹ 50 \text{ crore} + ₹ 60 \text{ crore} + ₹ 8 \text{ crore} - ₹ 8 \text{ crore} + ₹ 10 \text{ crore} + ₹ 5 \text{ crore} \\
 &= ₹ 425 \text{ crore}
 \end{aligned}$$

Ans. Net national product at market price = ₹ 425 crore.

46. Calculate 'Net Domestic Product at Market Price':

Items	(₹ in crore)
(i) Private final consumption expenditure	400
(ii) Opening stock	10
(iii) Consumption of fixed capital	25
(iv) Imports	15
(v) Government final consumption expenditure	90
(vi) Net current transfers to rest of the world	5
(vii) Gross domestic fixed capital formation	80
(viii) Closing stock	20
(ix) Exports	10
(x) Net factor income to abroad	(-) 5

[CBSE (AI) 2015]

Sol. Net Domestic Product at Market Price

$$\begin{aligned}
 &= \text{Private final consumption expenditure} + \text{Government final consumption expenditure} + \text{Gross domestic fixed capital formation} + \text{Closing stock} - \text{Opening stock} + \text{Exports} - \text{Imports} - \text{Consumption of fixed capital} \\
 &= ₹ 400 \text{ crore} + ₹ 90 \text{ crore} + ₹ 80 \text{ crore} + ₹ 20 \text{ crore} - ₹ 10 \text{ crore} + ₹ 10 \text{ crore} - ₹ 15 \text{ crore} - ₹ 25 \text{ crore} \\
 &= ₹ 550 \text{ crore}
 \end{aligned}$$

Ans. Net domestic product at market price = ₹ 550 crore.

47. Calculate National Income:

Items	(₹ in crore)
(i) Net imports	5
(ii) Net domestic capital formation	15
(iii) Personal income	90
(iv) National debt interest	10
(v) Corporate tax	25
(vi) Government final consumption expenditure	20
(vii) Net factor income to abroad	(-) 5
(viii) Net indirect tax	10
(ix) Undistributed profits	0
(x) Private final consumption expenditure	100

[CBSE (F) 2015]

Sol. National Income

$$\begin{aligned}
 &= \text{Private final consumption expenditure} + \text{Government final consumption expenditure} + \text{Net domestic capital formation} - \text{Net imports} - \text{Net indirect tax} - \text{Net factor income to abroad} \\
 &= ₹ 100 \text{ crore} + ₹ 20 \text{ crore} + ₹ 15 \text{ crore} - ₹ 5 \text{ crore} - ₹ 10 \text{ crore} - (-) ₹ 5 \text{ crore} \\
 &= ₹ 100 \text{ crore} + ₹ 20 \text{ crore} + ₹ 15 \text{ crore} - ₹ 5 \text{ crore} - ₹ 10 \text{ crore} + ₹ 5 \text{ crore} \\
 &= ₹ 125 \text{ crore}
 \end{aligned}$$

Ans. National income = ₹ 125 crore.

48. Find Gross National Product at Market Price:

Items	(₹ in crore)
(i) Private final consumption expenditure	800
(ii) Net current transfers to abroad	20
(iii) Net factor income to abroad	(-) 10
(iv) Government final consumption expenditure	300
(v) Net indirect tax	150
(vi) Net domestic capital formation	200
(vii) Current transfers from government	40
(viii) Depreciation	100
(ix) Net imports	30
(x) Income accruing to government	90
(xi) National debt interest	50

[CBSE (AI) 2016]

Sol. Gross National Product at Market Price

$$\begin{aligned}
 &= \text{Private final consumption expenditure} + \text{Government final consumption expenditure} + \text{Net domestic capital formation} + \text{Depreciation} - \text{Net imports} - \text{Net factor income to abroad} \\
 &= ₹ 800 \text{ crore} + ₹ 300 \text{ crore} + ₹ 200 \text{ crore} + ₹ 100 \text{ crore} - ₹ 30 \text{ crore} - (-) ₹ 10 \text{ crore} \\
 &= ₹ 800 \text{ crore} + ₹ 300 \text{ crore} + ₹ 200 \text{ crore} + ₹ 100 \text{ crore} - ₹ 30 \text{ crore} + ₹ 10 \text{ crore} \\
 &= ₹ 1,380 \text{ crore}
 \end{aligned}$$

Ans. Gross national product at market = ₹ 1,380 crore.

49. Calculate Net National Product at Market Price:

Items	(₹ in crore)
(i) Net current transfers to abroad	10
(ii) Private final consumption expenditure	500
(iii) Current transfers from government	30
(iv) Net factor income to abroad	20
(v) Net exports	(-) 20
(vi) Net indirect tax	120
(vii) National debt interest	70
(viii) Net domestic capital formation	80
(ix) Income accruing to government	60
(x) Government final consumption expenditure	100

[CBSE (AI) 2016]

Sol. Net National Product at Market Price

$$\begin{aligned}
 &= \text{Private final consumption expenditure} + \text{Government final consumption expenditure} + \text{Net domestic capital formation} + \text{Net exports} - \text{Net factor income to abroad} \\
 &= ₹ 500 \text{ crore} + ₹ 100 \text{ crore} + ₹ 80 \text{ crore} + (-) ₹ 20 \text{ crore} - ₹ 20 \text{ crore} \\
 &= ₹ 500 \text{ crore} + ₹ 100 \text{ crore} + ₹ 80 \text{ crore} - ₹ 20 \text{ crore} - ₹ 20 \text{ crore} \\
 &= ₹ 640 \text{ crore}
 \end{aligned}$$

Ans. Net national product at market price = ₹ 640 crore.

50. Calculate National Income:

Items	(₹ in crore)
(i) Corporation tax	100
(ii) Private final consumption expenditure	900
(iii) Personal income tax	120
(iv) Government final consumption expenditure	200
(v) Undistributed profits	50
(vi) Change in stocks	(-) 20
(vii) Net domestic fixed capital formation	120
(viii) Net imports	10
(ix) Net indirect tax	150
(x) Net factor income from abroad	(-) 10
(xi) Private income	1,000

[CBSE (AI) 2016]

Sol. National Income

$$\begin{aligned}
 &= \text{Private final consumption expenditure} + \text{Government final consumption expenditure} + \text{Net domestic fixed capital formation} + \text{Change in stocks} - \text{Net imports} - \text{Net indirect tax} + \text{Net factor income from abroad} \\
 &= ₹ 900 \text{ crore} + ₹ 200 \text{ crore} + ₹ 120 \text{ crore} + (-) ₹ 20 \text{ crore} - ₹ 10 \text{ crore} - ₹ 150 \text{ crore} + (-) ₹ 10 \text{ crore} \\
 &= ₹ 900 \text{ crore} + ₹ 200 \text{ crore} + ₹ 120 \text{ crore} - ₹ 20 \text{ crore} - ₹ 10 \text{ crore} - ₹ 150 \text{ crore} - ₹ 10 \text{ crore} \\
 &= ₹ 1,030 \text{ crore}
 \end{aligned}$$

Ans. National income = ₹ 1,030 crore.

51. Calculate Net Domestic Product at Factor Cost:

Items	(₹ in crore)
(i) Private final consumption expenditure	8,000
(ii) Government final consumption expenditure	1,000
(iii) Exports	70
(iv) Imports	120
(v) Consumption of fixed capital	60
(vi) Gross domestic fixed capital formation	500
(vii) Change in stock	100
(viii) Factor income to abroad	40
(ix) Factor income from abroad	90
(x) Indirect taxes	700
(xi) Subsidies	50
(xii) Net current transfers to abroad	(-) 30

[CBSE Delhi 2017]

Sol. Net Domestic Product at Factor Cost

$$\begin{aligned}
 &= \text{Private final consumption expenditure} + \text{Government final consumption expenditure} + \text{Gross domestic fixed capital formation} + \text{Change in stock} + \text{Exports} - \text{Imports} - \text{Consumption of fixed capital} - \text{Indirect taxes} + \text{Subsidies} \\
 &= ₹ 8,000 \text{ crore} + ₹ 1,000 \text{ crore} + ₹ 500 \text{ crore} + ₹ 100 \text{ crore} + ₹ 70 \text{ crore} - ₹ 120 \text{ crore} - ₹ 60 \text{ crore} \\
 &\quad - ₹ 700 \text{ crore} + ₹ 50 \text{ crore} \\
 &= ₹ 8,840 \text{ crore}
 \end{aligned}$$

Ans. Net domestic product at factor cost = ₹ 8,840 crore.

52. Calculate National Income:

Items	(₹ in crore)
(i) Net factor income to abroad	(-) 50
(ii) Net indirect taxes	800
(iii) Net current transfers from rest of the world	100
(iv) Net imports	200
(v) Private final consumption expenditure	5,000
(vi) Government final consumption expenditure	3,000
(vii) Gross domestic capital formation	1,000
(viii) Consumption of fixed capital	150
(ix) Change in stock	(-) 50
(x) Mixed income	4,000
(xi) Scholarship to students	80

[CBSE Delhi 2017]

Sol. National Income

$$\begin{aligned}
 &= \text{Private final consumption expenditure} + \text{Government final consumption expenditure} + \text{Gross domestic capital formation} - \text{Net imports} - \text{Consumption of fixed capital} - \text{Net indirect taxes} - \text{Net factor income to abroad} \\
 &= ₹ 5,000 \text{ crore} + ₹ 3,000 \text{ crore} + ₹ 1,000 \text{ crore} - ₹ 200 \text{ crore} - ₹ 150 \text{ crore} - ₹ 800 \text{ crore} - (-) ₹ 50 \text{ crore} \\
 &= ₹ 5,000 \text{ crore} + ₹ 3,000 \text{ crore} + ₹ 1,000 \text{ crore} - ₹ 200 \text{ crore} - ₹ 150 \text{ crore} - ₹ 800 \text{ crore} + ₹ 50 \text{ crore} \\
 &= ₹ 7,900 \text{ crore}
 \end{aligned}$$

Ans. National income = ₹ 7,900 crore.

53. Calculate Net National Product at Market Price:

Items	(₹ in crore)
(i) Gross domestic fixed capital formation	400
(ii) Private final consumption expenditure	8,000
(iii) Government final consumption expenditure	3,000
(iv) Change in stock	50
(v) Consumption of fixed capital	40
(vi) Net indirect taxes	100
(vii) Net exports	(-) 60
(viii) Net factor income to abroad	(-) 80
(ix) Net current transfers from abroad	100
(x) Dividend	100

[CBSE Delhi 2017]

Sol. Net National Product at Market Price

$$\begin{aligned}
 &= \text{Private final consumption expenditure} + \text{Government final consumption expenditure} + \text{Gross domestic fixed capital formation} + \text{Change in stock} + \text{Net exports} - \text{Consumption of fixed capital} - \text{Net factor income to abroad} \\
 &= ₹ 8,000 \text{ crore} + ₹ 3,000 \text{ crore} + ₹ 400 \text{ crore} + ₹ 50 \text{ crore} + (-) ₹ 60 \text{ crore} - ₹ 40 \text{ crore} - (-) ₹ 80 \text{ crore} \\
 &= ₹ 8,000 \text{ crore} + ₹ 3,000 \text{ crore} + ₹ 400 \text{ crore} + ₹ 50 \text{ crore} - ₹ 60 \text{ crore} - ₹ 40 \text{ crore} + ₹ 80 \text{ crore} \\
 &= ₹ 11,430 \text{ crore}
 \end{aligned}$$

Ans. Net national product at market price = ₹ 11,430 crore.

Miscellaneous Numericals

54. Find national income when $GDP_{MP} = ₹ 50,000$, gross capital formation = ₹ 10,000, net capital formation = ₹ 8,000, capital loss = ₹ 6,000, and excise duty paid to the government = ₹ 4,000.

$$\begin{aligned} \text{Sol. National Income} &= GDP_{MP} - \text{Depreciation} - \text{Excise duty} \\ &= ₹ 50,000 - (₹ 10,000 - ₹ 8,000) - ₹ 4,000 \\ &= ₹ 50,000 - ₹ 2,000 - ₹ 4,000 \\ &= ₹ 44,000 \end{aligned}$$

Ans. National income = ₹ 44,000.

55. Find domestic income when $GNP_{MP} = ₹ 1,20,000$, indirect taxes = ₹ 20,000, consumption of fixed capital = ₹ 5,000, net exports = ₹ 5,000 and factor income from rest of the world = ₹ 3,000.

$$\begin{aligned} \text{Sol. Domestic Income} &= GNP_{MP} - \text{Indirect taxes} - \text{Consumption of fixed capital} - \text{Factor income from rest of the world} \\ &= ₹ 1,20,000 - ₹ 20,000 - ₹ 5,000 - ₹ 3,000 \\ &= ₹ 92,000 \end{aligned}$$

Ans. Domestic income = ₹ 92,000.

56. Calculate 'Depreciation on Capital Asset' from the following data:

Items

- | | |
|----------------------------------|---------------|
| (i) Capital value of the asset | ₹ 1,000 crore |
| (ii) Estimated life of the asset | 20 years |
| (iii) Scrap value | ₹ 40 crore |

$$\begin{aligned} \text{Sol. Depreciation on Capital Asset} &= \frac{\text{Capital value of the asset} - \text{Scrap value}}{\text{Estimated life of the asset}} \\ &= \frac{₹ 1,000 \text{ crore} - ₹ 40 \text{ crore}}{20 \text{ years}} \\ &= \frac{₹ 960 \text{ crore}}{20 \text{ years}} = ₹ 48 \text{ crore} \end{aligned}$$

Ans. Depreciation on capital asset = ₹ 48 crore.

57. Calculate 'Depreciation on Capital Asset' from the following data:

Items

- | | |
|---------------------------------|------------|
| (i) Estimated life of the asset | 10 years |
| (ii) Capital value of the asset | ₹ 400 lakh |
| (iii) Scrap value | Nil |

$$\begin{aligned} \text{Sol. Depreciation on Capital Asset} &= \frac{\text{Capital value of the asset} - \text{Scrap value}}{\text{Estimated life of the asset}} \\ &= \frac{₹ 400 \text{ lakh} - 0}{10 \text{ years}} \\ &= \frac{₹ 400 \text{ lakh}}{10 \text{ years}} = ₹ 40 \text{ lakh} \end{aligned}$$

Ans. Depreciation on capital asset = ₹ 40 lakh.

58. From the following data, calculate the (a) Gross Domestic Product at Factor Cost, and (b) Net National Product at Market Price:

Items

- | | |
|----------------------|--------------|
| | (₹ in crore) |
| (i) Gross investment | 90 |
| (ii) Net exports | 10 |

(iii) Net indirect taxes	5
(iv) Depreciation	15
(v) Net factor income from abroad	(-) 5
(vi) Personal consumption expenditure	350
(vii) Government purchases of goods and services	100

Sol. (a) Gross Domestic Product at Factor Cost
 = Personal consumption expenditure + Government purchases of goods and services + Gross investment + Net exports – Net indirect taxes
 = ₹ 350 crore + ₹ 100 crore + ₹ 90 crore + ₹ 10 crore – ₹ 5 crore
 = ₹ 545 crore

(b) Net National Product at Market Price
 = Gross domestic product at factor cost – Depreciation + Net indirect taxes + Net factor income from abroad
 = ₹ 545 crore – ₹ 15 crore + ₹ 5 crore + (-) ₹ 5 crore
 = ₹ 545 crore – ₹ 15 crore + ₹ 5 crore – ₹ 5 crore
 = ₹ 530 crore

Ans. (a) Gross domestic product at factor cost = ₹ 545 crore.

(b) Net national product at market price = ₹ 530 crore.

59. From the following data, calculate (a) Gross National Product at Market Price, and (b) National Income:

Items	(₹ in crore)
(i) Sale	70,000
(ii) Stock in the beginning of year	5,000
(iii) Stock in the end of year	25,000
(iv) Intermediate consumption	10,000
(v) Depreciation	1,000
(vi) Indirect tax	300
(vii) Subsidy	100

Sol. (a) Gross National Product at Market Price
 = Sales + Change in stock (Stock in the end of year – Stock in the beginning of year) – Intermediate consumption + Net factor income from abroad
 = ₹ 70,000 crore + (₹ 25,000 crore – ₹ 5,000 crore) – ₹ 10,000 crore + 0
 = ₹ 70,000 crore + ₹ 20,000 crore – ₹ 10,000 crore + 0
 = ₹ 80,000 crore

(b) National Income
 = Gross National Product at Market Price – Depreciation – Indirect tax + Subsidy
 = ₹ 80,000 crore – ₹ 1,000 crore – ₹ 300 crore + ₹ 100 crore
 = ₹ 78,800 crore

Ans. (a) Gross national product at market price = ₹ 80,000 crore.

(b) National income = ₹ 78,800 crore.

60. Calculate (a) Gross Domestic Product at Market Price by Income Method, and (b) Net National Product at Factor Cost by Expenditure Method from the following data:

Items	(₹ in lakh)
(i) Private final consumption expenditure	450
(ii) Operating surplus	520

(iii) Government final consumption expenditure	50
(iv) Indirect taxes	60
(v) Mixed income of self-employed	20
(vi) Consumption of fixed capital	30
(vii) Change in stock	30
(viii) Gross domestic capital formation	330
(ix) Compensation of employees	200
(x) Net exports	(-) 10
(xi) Net factor income from abroad	(-) 10
(xii) Subsidies	10

Sol. (a) **Income Method:**

Gross Domestic Product at Market Price

= Compensation of employees + Operating surplus + Mixed income of self-employed
+ Consumption of fixed capital + Indirect taxes – Subsidies

= ₹ 200 lakh + ₹ 520 lakh + ₹ 20 lakh + ₹ 30 lakh + ₹ 60 lakh – ₹ 10 lakh

= ₹ 820 lakh

(b) **Expenditure Method:**

Net National Product at Factor Cost

= Private final consumption expenditure + Government final consumption expenditure + Gross
domestic capital formation + Net exports – Consumption of fixed capital – Indirect taxes
+ Subsidies + Net factor income from abroad

= ₹ 450 lakh + ₹ 50 lakh + ₹ 330 lakh + (-) ₹ 10 lakh – ₹ 30 lakh – ₹ 60 lakh + ₹ 10 lakh + (-) ₹ 10 lakh

= ₹ 450 lakh + ₹ 50 lakh + ₹ 330 lakh – ₹ 10 lakh – ₹ 30 lakh – ₹ 60 lakh + ₹ 10 lakh – ₹ 10 lakh

= ₹ 730 lakh

Ans. (a) Gross domestic product at market price (by income method) = ₹ 820 lakh.

(b) Net national product at factor cost (by expenditure method) = ₹ 730 lakh.

61. Given the following data, find Net National Product at Market Price by (a) Expenditure Method, and
(b) Income Method:

Items	(₹ in lakh)
(i) Personal consumption expenditure	1,400
(ii) Wages and salaries	1,400
(iii) Employers' contribution to social security	200
(iv) Contribution to provident fund by the employees through the employer	100
(v) Gross business fixed capital formation	120
(vi) Gross residential construction investment	120
(vii) Gross public expenditure	480
(viii) Rent	100
(ix) Inventory investment	40
(x) Dividend and corporate profit tax	120
(xi) Corporate saving	80
(xii) Excess of exports over imports	40
(xiii) Interest	80
(xiv) Mixed income of self-employed	200

(xv) Net factor income to abroad	20
(xvi) Depreciation (Depreciation = Gross capital formation – Net capital formation)	0
(xvii) Indirect taxes	40
(xviii) Subsidy	20

Sol. (a) Expenditure Method

Gross Domestic Product at Market Price

= Personal consumption expenditure + Gross business fixed capital formation + Gross residential construction investment + Gross public expenditure + Inventory investment + Excess of exports over imports

= ₹ 1,400 lakh + ₹ 120 lakh + ₹ 120 lakh + ₹ 480 lakh + ₹ 40 lakh + ₹ 40 lakh

= ₹ 2,200 lakh

Net National Product at Market Price

= Gross domestic product at market price – Depreciation – Net factor income to abroad

= ₹ 2,200 lakh – ₹ 0 lakh – ₹ 20 lakh

= ₹ 2,180 lakh

(b) Income Method

Net Domestic Product at Factor Cost

= Wages and salaries + Employers' contribution to social security + Rent + Interest + Dividend and corporate profit tax + Corporate saving + Mixed income of self-employed

= ₹ 1,400 lakh + ₹ 200 lakh + ₹ 100 lakh + ₹ 80 lakh + ₹ 120 lakh + ₹ 80 lakh + ₹ 200 lakh

= ₹ 2,180 lakh

Net National Product at Market Price

= Net domestic product at factor cost + Net indirect taxes – Net factor income to abroad

= ₹ 2,180 lakh + (₹ 40 lakh – ₹ 20 lakh) – ₹ 20 lakh

= ₹ 2,180 lakh + ₹ 20 lakh – ₹ 20 lakh

= ₹ 2,180 lakh

Ans. Net national product at market price (by expenditure and income methods) = ₹ 2,180 lakh.

62. Calculate Gross Domestic Product at Market Price using (a) Product Method, and (b) Income Method:

Items	(₹ in crore)
(i) Intermediate consumption of	
(a) Primary sector	1,000
(b) Secondary sector	800
(c) Tertiary sector	600
(ii) Value of output of	
(a) Primary sector	2,000
(b) Secondary sector	1,800
(c) Tertiary sector	1,400
(iii) Rent and royalty	20
(iv) Compensation of employees	800
(v) Benefit of rent free accommodation, and interest free loans to the employees	400
(vi) Mixed income of the people using family inputs	1,300
(vii) Operating surplus	600

(viii) Net factor income to rest of the world	40
(ix) Interest	10
(x) Consumption of fixed capital	80
(xi) Net indirect taxes	20

Sol. (a) **Product Method**

Gross Domestic Product at Market Price

= Value of output – Intermediate consumption

= (₹ 2,000 crore + ₹ 1,800 crore + ₹ 1,400 crore) – (₹ 1,000 crore + ₹ 800 crore + ₹ 600 crore)

= ₹ 5,200 crore – ₹ 2,400 crore

= ₹ 2,800 crore

(b) **Income Method**

Gross Domestic Product at Market Price

= Compensation of employees + Operating surplus + Mixed income + Consumption of fixed capital + Net indirect taxes

= ₹ 800 crore + ₹ 600 crore + ₹ 1,300 crore + ₹ 80 crore + ₹ 20 crore

= ₹ 2,800 crore

Ans. Gross Domestic Product at Market Price (by product and income methods) = ₹ 2,800 crore.

63. Calculate National Income by (a) Income Method, and (b) Expenditure Method.

Items	(₹ in crore)
(i) Capital transfers from rest of the world	200
(ii) Government final consumption expenditure	2,000
(iii) Current transfers from rest of the world	200
(iv) Wages and salaries	7,600
(v) Dividend	1,000
(vi) Rent and royalty	400
(vii) Interest	300
(viii) Addition to the stock of capital	1,000
(ix) Profit	1,600
(x) Employers' contribution to social security on behalf of employees	400
(xi) Excess of imports over exports	100
(xii) Excess of factor income earned by the non-residents from the domestic territory over the factor income earned by the residents from rest of the world	60
(xiii) Consumption of fixed capital	80
(xiv) Private final consumption expenditure	8,000
(xv) Net indirect taxes	600

Sol. (a) **Income Method**

National Income

= Wages and salaries + Rent and royalty + Interest + Profit + Employers' contribution to social security – Excess of factor income earned by the non-residents

= ₹ 7,600 crore + ₹ 400 crore + ₹ 300 crore + ₹ 1,600 crore + ₹ 400 crore – ₹ 60 crore

= ₹ 10,240 crore

(b) Expenditure Method

National Income

= Government final consumption expenditure + Private final consumption expenditure
+ Addition to the stock of capital – Excess of imports over exports – Net indirect taxes – Excess
of factor income earned by the non-residents

= ₹ 2,000 crore + ₹ 8,000 crore + ₹ 1,000 crore – ₹ 100 crore – ₹ 600 crore – ₹ 60 crore

= ₹ 10,240 crore

Ans. National Income (by income and expenditure methods) = ₹ 10,240 crore.

64. From the following information, calculate Gross National Product at Factor Cost by (a) Income Method, and (b) Expenditure Method:

Items	(₹ in crore)
(i) Factor income from abroad	10
(ii) Compensation of employees	150
(iii) Net domestic capital formation	50
(iv) Private final consumption expenditure	220
(v) Factor income to abroad	15
(vi) Change in stock	15
(vii) Employer's contribution to social security schemes	10
(viii) Consumption of fixed capital	15
(ix) Interest	40
(x) Exports	20
(xi) Imports	25
(xii) Indirect taxes	30
(xiii) Subsidies	10
(xiv) Rent	40
(xv) Government final consumption expenditure	85
(xvi) Profit	100

Sol. (a) Income Method

Gross National Product at Factor Cost

= Compensation of employees + Interest + Rent + Profit + Factor income from abroad
+ Consumption of fixed capital – Factor income to abroad

= ₹ 150 crore + ₹ 40 crore + ₹ 40 crore + ₹ 100 crore + ₹ 10 crore + ₹ 15 crore – ₹ 15 crore

= ₹ 340 crore

(b) Expenditure Method

Gross National Product at Factor Cost

= Private final consumption expenditure + Government final consumption expenditure + Net
domestic capital formation + Consumption of fixed capital + Exports – Imports – Indirect taxes
+ Subsidies + Factor income from abroad – Factor income to abroad

= ₹ 220 crore + ₹ 85 crore + ₹ 50 crore + ₹ 15 crore + ₹ 20 crore – ₹ 25 crore – ₹ 30 crore + ₹ 10 crore
+ ₹ 10 crore – ₹ 15 crore

= ₹ 340 crore

Ans. Gross National Product at Factor Cost (by income and expenditure methods) = ₹ 340 crore.

65. Calculate (a) Gross National Product at Market Price by Income Method, and (b) National Income by Expenditure Method on the basis of the following data:

Items	(₹ in lakh)
(i) Net export	10
(ii) Rent	20
(iii) Private final consumption expenditure	400
(iv) Interest	30
(v) Dividend	45
(vi) Undistributed profit	5
(vii) Corporate tax	10
(viii) Government final consumption expenditure	100
(ix) Net domestic capital formation	50
(x) Compensation of employees	400
(xi) Consumption of fixed capital	10
(xii) Net indirect tax	50
(xiii) Net factor income from abroad	(-) 10

Sol. (a) **Income Method**

Gross National Product at Market Price

$$\begin{aligned}
 &= \text{Compensation of employees} + \text{Rent} + \text{Interest} + \text{Dividend} + \text{Undistributed profit} + \text{Corporate tax} \\
 &\quad + \text{Consumption of fixed capital} + \text{Net indirect tax} + \text{Net factor income from abroad} \\
 &= ₹ 400 \text{ lakh} + ₹ 20 \text{ lakh} + ₹ 30 \text{ lakh} + ₹ 45 \text{ lakh} + ₹ 5 \text{ lakh} + ₹ 10 \text{ lakh} + ₹ 10 \text{ lakh} + ₹ 50 \text{ lakh} \\
 &\quad + (-) ₹ 10 \text{ lakh} \\
 &= ₹ 400 \text{ lakh} + ₹ 20 \text{ lakh} + ₹ 30 \text{ lakh} + ₹ 45 \text{ lakh} + ₹ 5 \text{ lakh} + ₹ 10 \text{ lakh} + ₹ 10 \text{ lakh} + ₹ 50 \text{ lakh} \\
 &\quad - ₹ 10 \text{ lakh} \\
 &= ₹ 560 \text{ lakh}
 \end{aligned}$$

(b) **Expenditure Method**

National Income

$$\begin{aligned}
 &= \text{Private final consumption expenditure} + \text{Government final consumption expenditure} + \text{Net} \\
 &\quad \text{domestic capital formation} + \text{Net export} - \text{Net indirect tax} + \text{Net factor income from abroad} \\
 &= ₹ 400 \text{ lakh} + ₹ 100 \text{ lakh} + ₹ 50 \text{ lakh} + ₹ 10 \text{ lakh} - ₹ 50 \text{ lakh} + (-) ₹ 10 \text{ lakh} \\
 &= ₹ 400 \text{ lakh} + ₹ 100 \text{ lakh} + ₹ 50 \text{ lakh} + ₹ 10 \text{ lakh} - ₹ 50 \text{ lakh} - ₹ 10 \text{ lakh} \\
 &= ₹ 500 \text{ lakh}
 \end{aligned}$$

Ans. Gross national product at market price (by income method) = ₹ 560 lakh.

National income (by expenditure method) = ₹ 500 lakh.

66. Given the following data, find the missing value of 'Government Final Consumption Expenditure' and 'Mixed Income of Self-employed'.

Items	(₹ in crore)
(i) National income	71,000
(ii) Gross domestic capital formation	10,000
(iii) Government final consumption expenditure	?
(iv) Mixed income of self-employed	?
(v) Net factor income from abroad	1,000
(vi) Net indirect taxes	2,000

(vii) Profits	1,200
(viii) Wages and salaries	15,000
(ix) Net exports	5,000
(x) Private final consumption expenditure	40,000
(xi) Consumption of fixed capital	3,000
(xii) Operating surplus	30,000

[CBSE 2019 (58/1/1)]

Sol. Government Final Consumption Expenditure

$$\begin{aligned}
 &= \text{National income} - \text{Private final consumption expenditure} - \text{Gross domestic capital formation} \\
 &\quad - \text{Net exports} + \text{Consumption of fixed capital} + \text{Net indirect taxes} - \text{Net factor income from abroad} \\
 &= ₹ 71,000 \text{ crore} - ₹ 40,000 \text{ crore} - ₹ 10,000 \text{ crore} - ₹ 5,000 \text{ crore} + ₹ 3,000 \text{ crore} + ₹ 2,000 \text{ crore} \\
 &\quad - ₹ 1,000 \text{ crore} \\
 &= ₹ 20,000 \text{ crore}
 \end{aligned}$$

Mixed Income of Self-employed

$$\begin{aligned}
 &= \text{National income} - \text{Wages and salaries} - \text{Operating surplus} - \text{Net factor income from abroad} \\
 &= ₹ 71,000 \text{ crore} - ₹ 15,000 \text{ crore} - ₹ 30,000 \text{ crore} - ₹ 1,000 \text{ crore} \\
 &= ₹ 25,000 \text{ crore}
 \end{aligned}$$

Ans. Government final consumption expenditure = ₹ 20,000 crore.

Mixed income of self-employed = ₹ 25,000 crore.

67. Given the following data, find the missing values of 'Private Final Consumption Expenditure' and 'Operating Surplus'.

Items	(₹ in crore)
(i) National income	50,000
(ii) Net indirect taxes	1,000
(iii) Private final consumption expenditure	?
(iv) Gross domestic capital formation	17,000
(v) Profits	1,000
(vi) Government final consumption expenditure	12,500
(vii) Wages and salaries	20,000
(viii) Consumption of fixed capital	700
(ix) Mixed income of self-employed	13,000
(x) Operating surplus	?
(xi) Net factor income from abroad	500
(xii) Net exports	2,000

[CBSE 2019 (58/1/2)]

Sol. Private Final Consumption Expenditure

$$\begin{aligned}
 &= \text{National income} - \text{Government final consumption expenditure} - \text{Gross domestic capital formation} \\
 &\quad - \text{Net exports} + \text{Consumption of fixed capital} + \text{Net indirect taxes} - \text{Net factor income from abroad} \\
 &= ₹ 50,000 \text{ crore} - ₹ 12,500 \text{ crore} - ₹ 17,000 \text{ crore} - ₹ 2,000 \text{ crore} + ₹ 700 \text{ crore} + ₹ 1,000 \text{ crore} \\
 &\quad - ₹ 500 \text{ crore} \\
 &= ₹ 19,700 \text{ crore}
 \end{aligned}$$

Operating Surplus

= National income – Wages and salaries – Mixed income of self-employed – Net factor income from abroad

= ₹ 50,000 crore – ₹ 20,000 crore – ₹ 13,000 crore – ₹ 500 crore

= ₹ 16,500 crore

Ans. Private final consumption expenditure = ₹ 19,700 crore.

Operating surplus = ₹ 16,500 crore.

68. Given the following data, find the missing values of 'Gross Domestic Capital Formation' and 'Wages and Salaries'.

Items	(₹ in crore)
(i) Mixed income of self-employed	3,500
(ii) Net indirect taxes	300
(iii) Wages and salaries	?
(iv) Government final consumption expenditure	14,000
(v) Net exports	3,000
(vi) Consumption of fixed capital	300
(vii) Net factor income from abroad	700
(viii) Operating surplus	12,000
(ix) National income	30,000
(x) Profits	500
(xi) Gross domestic capital formation	?
(xii) Private final consumption expenditure	11,000

[CBSE 2019 (58/1/3)]

Sol. Gross Domestic Capital Formation

= National income – Private final consumption expenditure – Government final consumption expenditure – Net exports + Consumption of fixed capital + Net indirect taxes – Net factor income from abroad

= ₹ 30,000 crore – ₹ 11,000 crore – ₹ 14,000 crore – ₹ 3,000 crore + ₹ 300 crore + ₹ 300 crore – ₹ 700 crore

= ₹ 1,900 crore

Wages and Salaries

= National income – Operating surplus – Mixed income of self-employed – Net factor income from abroad

= ₹ 30,000 crore – ₹ 12,000 crore – ₹ 3,500 crore – ₹ 700 crore

= ₹ 13,800 crore

Ans. Gross domestic capital formation = ₹ 1,900 crore.

Wages and salaries = ₹ 13,800 crore.

69. Given the following data, find the values of 'Gross Domestic Capital Formation' and 'Operating Surplus'.

Items	(₹ in crore)
(i) National income	22,100
(ii) Wages and salaries	12,000
(iii) Private final consumption expenditure	7,200
(iv) Net indirect taxes	700

(v) Gross domestic capital formation	?
(vi) Depreciation	500
(vii) Government final consumption expenditure	6,100
(viii) Mixed income of self-employed	4,800
(ix) Operating surplus	?
(x) Net exports	3,400
(xi) Rent	1,200
(xii) Net factor income from abroad	(-) 150

[CBSE 2019 (58/2/1)]

Sol. Gross Domestic Capital Formation

$$\begin{aligned}
 &= \text{National income} - \text{Private final consumption expenditure} - \text{Government final consumption expenditure} - \text{Net exports} + \text{Depreciation} + \text{Net indirect taxes} - \text{Net factor income from abroad} \\
 &= ₹ 22,100 \text{ crore} - ₹ 7,200 \text{ crore} - ₹ 6,100 \text{ crore} - ₹ 3,400 \text{ crore} + ₹ 500 \text{ crore} + ₹ 700 \text{ crore} \\
 &\quad - (-) ₹ 150 \text{ crore} \\
 &= ₹ 22,100 \text{ crore} - ₹ 7,200 \text{ crore} - ₹ 6,100 \text{ crore} - ₹ 3,400 \text{ crore} + ₹ 500 \text{ crore} + ₹ 700 \text{ crore} \\
 &\quad + ₹ 150 \text{ crore} \\
 &= ₹ 6,750 \text{ crore}
 \end{aligned}$$

Operating Surplus

$$\begin{aligned}
 &= \text{National income} - \text{Wages and salaries} - \text{Mixed income of self-employed} - \text{Net factor income from abroad} \\
 &= ₹ 22,100 \text{ crore} - ₹ 12,000 \text{ crore} - ₹ 4,800 \text{ crore} - (-) ₹ 150 \text{ crore} \\
 &= ₹ 22,100 \text{ crore} - ₹ 12,000 \text{ crore} - ₹ 4,800 \text{ crore} + ₹ 150 \text{ crore} \\
 &= ₹ 5,450 \text{ crore}
 \end{aligned}$$

Ans. Gross domestic capital formation = ₹ 6,750 crore.

Operating surplus = ₹ 5,450 crore.

70. Given the following data, find the values of 'Government Final Consumption Expenditure' and 'Mixed Income of Self-employed':

Items	(₹ in crore)
(i) National income	7,100
(ii) Government final consumption expenditure	?
(iii) Gross domestic capital formation	1,000
(iv) Mixed income of self-employed	?
(v) Net indirect taxes	200
(vi) Net factor income from abroad	100
(vii) Private final consumption expenditure	4,000
(viii) Consumption of fixed capital	300
(ix) Profits	120
(x) Wages and salaries	1,500
(xi) Net exports	500
(xii) Operating surplus	3,000

[CBSE 2019 (58/3/1)]

Sol. Government Final Consumption Expenditure

= National income – Private final consumption expenditure – Gross domestic capital formation – Net exports + Consumption of fixed capital + Net indirect taxes – Net factor income from abroad

= ₹ 7,100 crore – ₹ 4,000 crore – ₹ 1,000 crore – ₹ 500 crore + ₹ 300 crore + ₹ 200 crore – ₹ 100 crore

= ₹ 2,000 crore

Mixed Income of Self-employed

= National income – Wages and salaries – Operating surplus – Net factor income from abroad

= ₹ 7,100 crore – ₹ 1,500 crore – ₹ 3,000 crore – ₹ 100 crore

= ₹ 2,500 crore

Ans. Government final consumption expenditure = ₹ 2,000 crore.

Mixed income of self-employed = ₹ 2,500 crore.

71. Given the following data, find the values of 'Operating Surplus' and 'Gross Domestic Capital Formation':

Items	(₹ in crore)
(i) Government final consumption expenditure	2,000
(ii) Mixed income of self-employed	1,500
(iii) National income	12,000
(iv) Net factor income from abroad	200
(v) Operating surplus	?
(vi) Profits	500
(vii) Private final consumption expenditure	6,000
(viii) Net indirect taxes	700
(ix) Net exports	1,800
(x) Consumption of fixed capital	600
(xi) Gross domestic capital formation	?
(xii) Wages and salaries	6,000

[CBSE 2019 (58/3/2)]

Sol. Operating Surplus

= National income – Wages and salaries – Mixed income of self-employed – Net factor income from abroad

= ₹ 12,000 crore – ₹ 6,000 crore – ₹ 1,500 crore – ₹ 200 crore

= ₹ 4,300 crore

Gross Domestic Capital Formation

= National income – Private final consumption expenditure – Government final consumption expenditure – Net exports + Consumption of fixed capital + Net indirect taxes – Net factor income from abroad

= ₹ 12,000 crore – ₹ 6,000 crore – ₹ 2,000 crore – ₹ 1,800 crore + ₹ 600 crore + ₹ 700 crore – ₹ 200 crore

= ₹ 3,300 crore

Ans. Operating surplus = ₹ 4,300 crore.

Gross domestic capital formation = ₹ 3,300 crore.

72. Given the following data, find the values of 'Operating Surplus' and 'Net Exports':

Items	(₹ in crore)
(i) Mixed income of self-employed	700
(ii) Net factor income from abroad	150
(iii) Private final consumption expenditure	2,200
(iv) Profits	200
(v) Net indirect taxes	150
(vi) National income	5,000
(vii) Gross domestic capital formation	1,100
(viii) Wages and salaries	2,200
(ix) Net exports	?
(x) Government final consumption expenditure	1,300
(xi) Consumption of fixed capital	200
(xii) Operating surplus	?

[CBSE 2019 (58/3/3)]

Sol. Operating Surplus

$$\begin{aligned}
 &= \text{National income} - \text{Wages and salaries} - \text{Mixed income of self-employed} - \text{Net factor income from abroad} \\
 &= ₹ 5,000 \text{ crore} - ₹ 2,200 \text{ crore} - ₹ 700 \text{ crore} - ₹ 150 \text{ crore} \\
 &= ₹ 1,950 \text{ crore}
 \end{aligned}$$

Net Exports

$$\begin{aligned}
 &= \text{National income} - \text{Private final consumption expenditure} - \text{Government final consumption expenditure} - \text{Gross domestic capital formation} + \text{Consumption of fixed capital} + \text{Net indirect taxes} - \text{Net factor income from abroad} \\
 &= ₹ 5,000 \text{ crore} - ₹ 2,200 \text{ crore} - ₹ 1,300 \text{ crore} - ₹ 1,100 \text{ crore} + ₹ 200 \text{ crore} + ₹ 150 \text{ crore} - ₹ 150 \text{ crore} \\
 &= ₹ 600 \text{ crore}
 \end{aligned}$$

Ans. Operating surplus = ₹ 1,950 crore.

Net exports = ₹ 600 crore.

73. Given the following data, find the values of 'Operating Surplus' and 'Net Exports':

Items	(₹ in crore)
(i) Wages and salaries	2,400
(ii) National income	4,200
(iii) Net exports	?
(iv) Net factor income from abroad	200
(v) Gross domestic capital formation	1,100
(vi) Mixed income of self-employed	400
(vii) Private final consumption expenditure	2,000
(viii) Net indirect taxes	150
(ix) Operating surplus	?
(x) Government final consumption expenditure	1,000
(xi) Consumption of fixed capital	100
(xii) Profits	500

[CBSE 2019 (58/5/1)]

Sol. Operating Surplus

= National income – Wages and salaries – Mixed income of self-employed – Net factor income from abroad

= ₹ 4,200 crore – ₹ 2,400 crore – ₹ 400 crore – ₹ 200 crore

= ₹ 1,200 crore

Net Exports

= National income – Private final consumption expenditure – Government final consumption expenditure – Gross domestic capital formation + Consumption of fixed capital + Net indirect taxes – Net factor income from abroad

= ₹ 4,200 crore – ₹ 2,000 crore – ₹ 1,000 crore – ₹ 1,100 crore + ₹ 100 crore + ₹ 150 crore – ₹ 200 crore

= ₹ 150 crore

Ans. Operating surplus = ₹ 1,200 crore.

Net exports = ₹ 150 crore.

74. Giving reason, explain how the following are treated while estimating national income:

(i) Payment of fees to a lawyer engaged by a firm.

(ii) Rent free house to an employee by an employer.

(iii) Purchases by foreign tourists.

Sol. (i) Services purchased by one firm from another, like consultancy services of an advocate, are treated as a part of intermediate consumption. Accordingly, payment of fees to a lawyer engaged by a firm is not to be included in the estimation of national income.

(ii) Rent free house to an employee by an employer is a component of compensation of employees. Therefore, it is included in national income.

(iii) Purchases by foreign tourists are like export of goods and services to the non-residents. It is a part of expenditure on domestic product, and therefore, a part of national income, as estimated using expenditure method.

75. Giving reason, explain how should the following be treated in estimating gross domestic product at market price.

(i) Fees to a mechanic paid by a firm.

(ii) Interest paid by an individual on a car loan taken from a bank.

(iii) Expenditure on purchasing a car for use by a firm.

Sol. (i) Fees to a mechanic paid by a firm will not be included in the estimation of gross domestic product at market price because this fees is an intermediate expenditure for the firm and not a final expenditure.

(ii) Interest paid by an individual on a car loan taken from a bank will not be included in estimation of gross domestic product at market price because such loans are not used for production purpose, rather are made for consumption purposes.

(iii) Expenditure on purchasing a car for use by a firm will be included in the estimation of gross domestic product at market price because it is an investment expenditure. The car purchased will be used by the firm for many years and the firm will be a final user of the car, provided it is neither a second hand car nor purchased for further sale.

76. How should the following be treated in estimating national income of a country? You must give reason for your answer.

(i) Taking care of aged parents.

(ii) Salaries paid to non-resident Indians working in Indian embassy in America.

(iii) Expenditure on providing police services by the government.

- Sol. (i) If it is a domestic care through personal services (of which valuation is not possible), it should not be included in the estimation of national income. However, if the care involves expenditure, it should be accounted for as private final consumption expenditure.
- (ii) Salaries paid to non-resident Indians working in Indian embassy in America is reflected in the national income of India as a negative component because it is a part of factor income to rest of the world.
- (iii) Expenditure on providing police services by the government should be included in the estimation of national income because expenditure incurred by the government is a part of government's final consumption expenditure.

77. How should the following be treated while estimating national income? You must give reason in support of your answer.

- (i) Bonus paid to employees.
- (ii) Addition to stocks during a year.
- (iii) Purchase of taxi by a taxi driver.

- Sol. (i) Bonus paid to employees will be included in the estimation of national income since it is a component of compensation of employees.
- (ii) Addition to stocks during a year will be included in the estimation of national income because change in stock is a part of investment expenditure.
- (iii) Purchase of taxi by a taxi driver will be included in the estimation of national income because it is an investment expenditure. A taxi will be used by the taxi driver for several years to earn his living.

78. Giving reasons, explain how should the following be treated in estimation of national income:

- (i) Expenditure by a firm on payment of fees to a chartered accountant.
- (ii) Payment of corporate tax by a firm.
- (iii) Purchase of refrigerator by a firm for own use.

[CBSE Delhi 2015]

- Sol. (i) Expenditure by a firm on payment of fees to a chartered accountant is not included in the estimation of national income because fees to a chartered accountant is an intermediate expenditure for the firm and not a final expenditure.
- (ii) Payment of corporate tax by a firm should not be included in the estimation of national income because it is a transfer payment by the firm. It is paid out of income and therefore, it is not to be separately added in the national income.
- (iii) Purchase of refrigerator by a firm is included in the estimation of national income because it is investment expenditure or capital formation. A refrigerator is used by the firm for several years and the firm is a final user of it.

79. Giving reasons, explain how the following should be treated in estimation of national income:

- (i) Payment of interest by a firm to a bank.
- (ii) Payment of interest by a bank to an individual.
- (iii) Payment of interest by an individual to a bank.

[CBSE (AI) 2015]

- Sol. (i) Payment of interest by a firm to a bank is included in national income because firm borrows money for production purpose and thus, it is a factor payment.
- (ii) Payment of interest by a bank to an individual is included in national income because the bank is expected to have used individual's saving for productive purpose and thus, this is a factor payment.
- (iii) Payment of interest by an individual to a bank is not included in national income because the individual uses the loan amount for consumption purpose and not for investment or productive purpose.

80. Giving reasons, explain how should the following be treated in estimation of national income:
- Payment of corporate tax by a firm.
 - Purchase of machinery by a factory for own use.
 - Purchase of uniforms for nurses by a hospital. [CBSE (F) 2015]
- Sol.
- Payment of corporate tax by a firm should not be included in the estimation of national income because it is a transfer payment by the firm. It is paid out of income and therefore, it is not to be separately added in the national income.
 - Purchase of machinery by a factory is included in the estimation of national income because it is investment expenditure or capital formation.
 - Purchase of uniforms for nurses by a hospital is not included in the estimation of national income, because uniform is provided by the hospital at the time of work. It is to be treated as an intermediate consumption.
81. How will you treat the following while estimating domestic product of a country? Give reasons for your answer:
- Profits earned by branches of country's bank in other countries.
 - Gifts given by an employer to his employees on independence day.
 - Purchase of goods by foreign tourists. [CBSE Delhi 2017]
- Sol.
- Profits earned by branches of country's bank in other countries is not a part of domestic product of India because the branches are outside the domestic territory of India. Hence, it is not included in domestic product of India.
 - Gifts given by an employer to his employees is not included in domestic product of India because these are transfer payments.
 - Purchase of goods by foreign tourists is included in domestic product of India since these are like exports which is a component of gross domestic product.
82. Will the following be included in the domestic product of India? Give reasons for your answer.
- Profits earned by foreign companies in India.
 - Salaries of Indians working in the Russian Embassy in India.
 - Profits earned by a branch of State Bank of India in Japan. [CBSE (AI) 2017]
- Sol.
- Profits earned by foreign companies in India is a part of domestic product of India because the companies are within the domestic territory of India.
 - Salary of Indians working in the Russian Embassy in India is not included in the domestic product of India because Russian Embassy is not a part of domestic territory of India.
 - Profits earned by a branch of State Bank of India in Japan is not a part of the domestic product of India because the branch of State Bank of India in Japan is not within the domestic territory of India.
83. Will the following be included in the national income of India? Give reasons for your answer.
- Financial assistance to flood victims.
 - Profits earned by the branches of a foreign bank in India.
 - Salaries of Indians working in the American Embassy in India. [CBSE (AI) 2017]
- Sol.
- Financial assistance to flood victims is not included in the national income of India. This is because financial assistance is a transfer income.
 - Profits earned by the branches of a foreign bank in India is reflected in the national income of India as a negative component because it is a part of factor income to rest of the world.
 - Salaries of Indians working in the American Embassy in India is included in national income of India because it is a part of factor income from rest of the world.

BANKING

1. If CRR (cash reserve ratio) is enhanced from 10% to 20%, what should be the change in credit supply, other things remaining constant? Give reason.

Sol. We know,

$$\text{Credit Multiplier} = \frac{1}{\text{CRR}}$$

When CRR enhances from 10% to 20%, credit multiplier is reduced to half of its earlier value. Accordingly, creation of credit or supply of credit in the economy should reduce to half, when other things are constant.

2. How would you interpret a fall in repo rate from 7% to 6% in the context of money supply in the economy?
- Sol. If there is a fall in repo rate from 7% to 6%, the central bank is giving a signal of 'easy money policy'. Funds will be easily available from the central bank in case commercial banks need them. Accordingly, commercial banks need not maintain high reserves of vault cash. Creation of credit by the commercial banks is likely to be more responsive to the demand for credit. Accordingly, supply of money is likely to increase.

AGGREGATE DEMAND, AGGREGATE SUPPLY AND RELATED CONCEPTS

1. Find out the marginal propensity to consume from the following data.

Income (₹)	Consumption (₹)
1,000	1,500
2,000	2,000

Sol.

Income (₹)	Change in Income (ΔY) (₹)	Consumption (₹)	Change in Consumption (ΔC) (₹)
1,000	—	1,500	—
2,000	$2,000 - 1,000 = 1,000$	2,000	$2,000 - 1,500 = 500$

$$\text{Marginal propensity to consume} = \frac{\Delta C}{\Delta Y} = \frac{500}{1,000} = 0.5$$

Ans. MPC = 0.5.

2. Find out the marginal propensity to consume and marginal propensity to save from the following data:

Income (₹)	Saving (₹)
100	60
200	100

Sol.

Income (₹)	Change in Income (ΔY) (₹)	Saving (₹)	Consumption (₹)	Change in Consumption (ΔC) (₹)
100	—	60	40	—
200	$200 - 100 = 100$	100	100	$100 - 40 = 60$

$$\text{Marginal propensity to consume} = \frac{\Delta C}{\Delta Y} = \frac{60}{100} = 0.6$$

$$\begin{aligned} \text{MPS} &= 1 - \text{MPC} \\ &= 1 - 0.6 = 0.4 \end{aligned}$$

Ans. MPC = 0.6 and MPS = 0.4.

3. Find aggregate demand, given the following information:

Items	(₹ in crore)
(i) Private consumption expenditure	50,000
(ii) Private investment expenditure	30,000
(iii) Government expenditure	20,000
(iv) Exports	10,000
(v) Imports	5,000

Sol. Aggregate Demand

$$\begin{aligned} &= \text{Private consumption expenditure (C)} + \text{Private investment expenditure (I)} + \text{Government expenditure (G)} + [\text{Exports} - \text{Imports (NX)}] \\ &= ₹ 50,000 \text{ crore} + ₹ 30,000 \text{ crore} + ₹ 20,000 \text{ crore} + (₹ 10,000 \text{ crore} - ₹ 5,000 \text{ crore}) \\ &= ₹ 1,05,000 \text{ crore} \end{aligned}$$

Ans. Aggregate demand = ₹ 1,05,000 crore.

4. In an economy $\bar{C} = 50$ and $\text{MPS} = 0.5$. Draw a diagram showing behaviour of consumption corresponding to income levels of 0, 100 and 200.

Sol. \bar{C} indicates autonomous consumption.

$$\begin{aligned} b &= \text{MPC} = 1 - \text{MPS} \\ &= 1 - 0.5 = 0.5 \end{aligned}$$

Thus, we have consumption function of the following type:

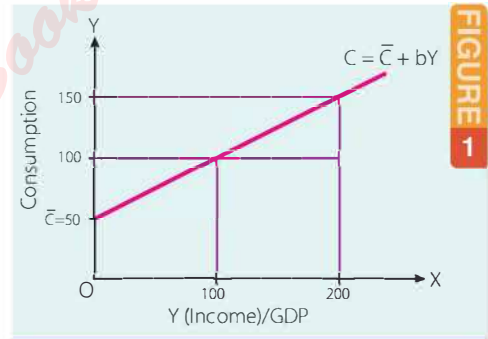
$$C = \bar{C} + bY$$

Substituting the values of Y as 0, 100 and 200, we get:

$$\begin{aligned} C &= 50 + 0.5(0) \\ &= 50 \end{aligned}$$

$$\begin{aligned} \text{When } Y = 100, \quad C &= 50 + 0.5(100) \\ &= 50 + 50 = 100 \end{aligned}$$

$$\begin{aligned} \text{and } Y = 200, \quad C &= 50 + 0.5(200) \\ &= 50 + 100 = 150 \end{aligned}$$



5. Income generated in the economy is twice the increase in autonomous investment. Find the values of MPC and MPS.

Sol. We know that,

$$\text{Multiplier (K)} = \frac{\Delta Y}{\Delta I}$$

Let the increase in investment = ₹ 100

$$\text{Increase in income} = 2 \times ₹ 100 = ₹ 200$$

$$K = \frac{200}{100} = 2$$

$$K = \frac{1}{1 - \text{MPC}} = \frac{1}{\text{MPS}}$$

Or,

$$\text{MPS} = \frac{1}{K}$$

$$\begin{aligned} \Rightarrow \quad \text{MPS} &= \frac{1}{2} = 0.5 \\ \therefore \quad \text{MPC} + \text{MPS} &= 1 \\ \text{MPC} &= 1 - \text{MPS} \\ &= 1 - 0.5 = 0.5 \end{aligned}$$

Ans. MPC = 0.5 and MPS = 0.5.

6. Find saving function when consumption function is given as: $C = 500 + 0.5Y$.

Sol. $S = -\bar{C} + (1 - b)Y$

Where, $-\bar{C}$ = Savings when $Y = 0$

and $1 - b = \text{MPS}$

$$\begin{aligned} \therefore \quad S &= -500 + (1 - 0.5)Y \\ S &= -500 + 0.5Y \end{aligned}$$

Ans. Saving function = $-500 + 0.5Y$.

7. Estimate the value of aggregate demand in an economy if:

- (a) Autonomous investment (\bar{I}) = ₹ 100 crore.
- (b) Marginal propensity to save (MPS) = 0.2
- (c) Level of income (Y) = ₹ 4,000 crore.
- (d) Autonomous consumption expenditure (\bar{C}) = ₹ 50 crore.

[CBSE Sample Paper 2019]

Sol. Given, autonomous investment (\bar{I}) = ₹ 100 crore

Marginal propensity to save (MPS) = 0.2

Level of income (Y) = ₹ 4,000 crore

Autonomous consumption expenditure (\bar{C}) = ₹ 50 crore

Marginal propensity to consume (MPC) = $1 - \text{MPS} = 1 - 0.2 = 0.8$

We know that,

$$AD = C + \bar{I}$$

Or,

$$\begin{aligned} AD &= \bar{C} + \text{MPC}(Y) + \bar{I} \\ &= 50 + 0.8(4,000) + 100 \\ &= 50 + 3,200 + 100 \\ &= 3,350 \end{aligned}$$

Ans. Aggregate demand = ₹ 3,350 crore.

8. If marginal propensity to save is 20% and is constant at all levels of income and the autonomous consumption is ₹ 100 crore, construct consumption function of the given hypothetical economy.

[CBSE 2019 (58/3/1)]

Sol. Given, marginal propensity to save (MPS) = $20\% = \frac{20}{100} = 0.2$

MPC = $1 - \text{MPS} = 1 - 0.2 = 0.8$

Autonomous consumption (\bar{C}) = ₹ 100 crore

Consumption function would be:

$$\begin{aligned} C &= \bar{C} + \text{MPC}(Y) \\ &= 100 + 0.8Y \end{aligned}$$

9. If marginal propensity to save is 10% and is constant at all levels of income, and the autonomous consumption is ₹ 200 crore, construct consumption function of the given hypothetical economy.

[CBSE 2019 (58/3/2)]

Sol. Given, marginal propensity to save (MPS) = $10\% = \frac{10}{100} = 0.1$

$$MPC = 1 - MPS = 1 - 0.1 = 0.9$$

Autonomous consumption (\bar{C}) = ₹ 200 crore

Consumption function would be:

$$\begin{aligned} C &= \bar{C} + MPC (Y) \\ &= 200 + 0.9Y \end{aligned}$$

10. If marginal propensity to consume is 80% and is constant at all levels of income, and the autonomous consumption is ₹ 400 crore, construct consumption function of the given hypothetical economy.

[CBSE 2019 (58/3/3)]

Sol. Given, marginal propensity to consume (MPC) = 80% = $\frac{80}{100} = 0.8$

Autonomous consumption (\bar{C}) = ₹ 400 crore

Consumption function would be:

$$\begin{aligned} C &= \bar{C} + MPC (Y) \\ &= 400 + 0.8Y \end{aligned}$$

11. The consumption function of an economy is: $C = 40 + 0.8Y$ (amount in ₹ crore). Determine that level of income where average propensity to consume will be one.

[CBSE 2019 (58/4/1)]

Sol. Given, $C = 40 + 0.8Y$

Average propensity to consume ($APC = \frac{C}{Y}$) will be one when:

$$\begin{aligned} Y &= C \\ Y &= 40 + 0.8Y \\ Y - 0.8Y &= 40 \\ 0.2Y &= 40 \\ Y &= \frac{40}{0.2} = 200 \end{aligned}$$

Ans. Average propensity to consume will be one when the level of income = ₹ 200 crore.

SHORT RUN EQUILIBRIUM OUTPUT

1. Find out the size of multiplier, when MPC is (i) 0, (ii) 0.5, (iii) 0.9 respectively.

Sol. (i) $MPC = 0$

$$\text{Multiplier} = \frac{1}{1 - MPC} = \frac{1}{1 - 0} = \frac{1}{1} = 1$$

(ii) $MPC = 0.5$

$$\text{Multiplier} = \frac{1}{1 - MPC} = \frac{1}{1 - 0.5} = \frac{1}{1 - \frac{1}{2}} = \frac{1}{\frac{1}{2}} = 2$$

(iii) $MPC = 0.9$

$$\text{Multiplier} = \frac{1}{1 - MPC} = \frac{1}{1 - 0.9} = \frac{1}{1 - \frac{9}{10}} = \frac{1}{\frac{1}{10}} = 10$$

2. Find out multiplier when MPS is (i) 0.4, (ii) 0.5, (iii) 0.8.

Sol. (i) $MPS = 0.4$

$$\text{Multiplier} = \frac{1}{MPS} = \frac{1}{0.4} = \frac{1}{\frac{4}{10}} = \frac{1}{\frac{2}{5}} = 2.5$$

(ii) $MPS = 0.5$

$$\text{Multiplier} = \frac{1}{MPS} = \frac{1}{0.5} = \frac{1}{\frac{5}{10}} = \frac{1}{\frac{1}{2}} = 2$$

(iii) $MPS = 0.8$

$$\text{Multiplier} = \frac{1}{MPS} = \frac{1}{0.8} = \frac{1}{\frac{8}{10}} = \frac{1}{\frac{4}{5}} = 1.25$$

3. As a result of increase in investment by ₹ 125 crore, national income increases by ₹ 500 crore. Calculate marginal propensity to consume.

Sol. We know,

$$\text{Multiplier (K)} = \frac{\Delta Y}{\Delta I}$$

Given, $\Delta Y = ₹ 500$ crore, $\Delta I = ₹ 125$ crore, we get,

$$K = \frac{500}{125} = 4$$

We also know,

$$K = \frac{1}{1 - MPC} = \frac{1}{MPS}$$

$$\frac{1}{MPS} = 4$$

$$MPS = \frac{1}{4} = 0.25$$

$$MPC = 1 - MPS$$

$$= 1 - 0.25 = 0.75$$

Ans. Marginal propensity to consume = 0.75.

4. As a result of increase in investment, national income rises by ₹ 600 crore. If marginal propensity to consume is 0.75, calculate the increase in investment.

Sol. Increase in national income (ΔY) = ₹ 600 crore

$MPC = 0.75$

$$\begin{aligned} \text{Multiplier (K)} &= \frac{1}{1 - MPC} \\ &= \frac{1}{1 - 0.75} = \frac{1}{0.25} = 4 \end{aligned}$$

We know,

$$K = \frac{\Delta Y}{\Delta I}$$

⇒

$$\Delta I = \frac{\Delta Y}{K} = \frac{600}{4} = 150$$

Ans. Increase in investment = ₹ 150 crore.

5. If marginal propensity to consume is 0.9, what is the value of multiplier? How much investment is needed to increase national income by ₹ 5,000 crore? Calculate.

Sol. Desired increase in national income (ΔY) = ₹ 5,000 crore

$MPC = 0.9$

$$\text{Multiplier (K)} = \frac{1}{1 - MPC} = \frac{1}{1 - 0.9} = \frac{1}{0.1} = 10$$

We know,

$$K = \frac{\Delta Y}{\Delta I}$$

⇒

$$\Delta I = \frac{\Delta Y}{K} = \frac{5,000}{10} = 500$$

Ans. Multiplier (K) = 10

Desired increase in investment = ₹ 500 crore.

6. In an economy, an increase in investment leads to increase in national income which is three times more than the increase in investment. Calculate marginal propensity to consume.

Sol. Increase in national income = 3 times more than the increase in investment

3 times more than increase in investment = 3 times of investment + Initial investment

Or,
$$\Delta Y = 3\Delta I + \Delta I \Rightarrow \Delta Y = 4\Delta I$$

Or,
$$4 = \frac{\Delta Y}{\Delta I}$$

Or, Multiplier (K) = 4 ($\because K = \frac{\Delta Y}{\Delta I}$)

We know,
$$K = \frac{1}{1 - MPC} \Rightarrow 4 = \frac{1}{1 - MPC}$$

$$\Rightarrow 4(1 - MPC) = 1 \Rightarrow 1 - MPC = \frac{1}{4}$$

$$\Rightarrow 1 - MPC = 0.25 \Rightarrow MPC = 1 - 0.25$$

$$\Rightarrow MPC = 0.75$$

Ans. Marginal propensity to consume = 0.75.

7. It is planned to increase national income by ₹ 1,000 crore. How much increase in investment is required to achieve this goal? Assume that marginal propensity to consume is 0.6. Calculate.

Sol. Desired increase in national income (ΔY) = ₹ 1,000 crore

MPC = 0.6

$$\begin{aligned} \text{Multiplier (K)} &= \frac{1}{1 - MPC} \\ &= \frac{1}{1 - 0.6} = \frac{1}{0.4} = 2.5 \end{aligned}$$

We know,

$$K = \frac{\Delta Y}{\Delta I}$$

$$\Rightarrow \Delta I = \frac{\Delta Y}{K} = \frac{1,000}{2.5} = 400$$

Ans. Desired increase in investment = ₹ 400 crore.

8. In an economy, marginal propensity to consume is 0.75. If investment expenditure is increased by ₹ 500 crore, calculate the increase in income and consumption expenditure.

Sol. Increase in investment (ΔI) = ₹ 500 crore

MPC = 0.75

$$\text{Multiplier (K)} = \frac{1}{1 - MPC} = \frac{1}{1 - 0.75} = \frac{1}{0.25} = 4$$

We know,
$$K = \frac{\Delta Y}{\Delta I}$$

$$\Rightarrow \Delta Y = K \times \Delta I = 4 \times 500 = 2,000$$

$$\Rightarrow \Delta C = \Delta Y (MPC) = 2,000 (0.75) = 1,500$$

Ans. Increase in income = ₹ 2,000 crore.

Increase in consumption expenditure = ₹ 1,500 crore

9. What is the value of multiplier when marginal propensity to save is zero? [CBSE Sample Paper 2013]

Sol. Given, MPS = 0 (zero)

We know that,
$$\text{Multiplier} = \frac{1}{MPS} = \frac{1}{0} = \infty$$

Ans. Multiplier = ∞ (infinity).

10. An economy is in equilibrium. Calculate national income from the following:

Autonomous consumption = 100.

Marginal propensity to save = 0.2.

Investment expenditure = 200.

[CBSE Delhi 2015]

Sol. Given, autonomous consumption (\bar{C}) = 100

Marginal propensity to save (MPS) = 0.2

Investment expenditure (I) = 200

Marginal propensity to consume (MPC) = $1 - \text{MPS}$
 $= 1 - 0.2 = 0.8$

At the equilibrium level,

$$Y = C + I$$

Or,

$$Y = \bar{C} + \text{MPC}(Y) + I$$

\Rightarrow

$$Y = 100 + 0.8Y + 200 \quad \Rightarrow \quad Y = 300 + 0.8Y$$

\Rightarrow

$$Y - 0.8Y = 300 \quad \Rightarrow \quad 0.2Y = 300$$

\Rightarrow

$$Y = \frac{300}{0.2} = 1,500$$

Ans. National income = 1,500.

11. An economy is in equilibrium. Find 'autonomous consumption' from the following:

National income = 1,000.

Marginal propensity to consume = 0.8.

Investment expenditure = 100.

[CBSE Delhi 2015]

Sol. Given, national income (Y) = 1,000

Marginal propensity to consume (MPC) = 0.8

Investment expenditure (I) = 100

At the equilibrium level,

$$Y = C + I$$

Or,

$$Y = \bar{C} + \text{MPC}(Y) + I$$

\Rightarrow

$$1,000 = \bar{C} + 0.8(1,000) + 100$$

\Rightarrow

$$1,000 = \bar{C} + 800 + 100$$

\Rightarrow

$$1,000 = \bar{C} + 900$$

\Rightarrow

$$\bar{C} = 1,000 - 900 = 100$$

Ans. Autonomous consumption = 100.

12. An economy is in equilibrium. Find marginal propensity to consume from the following:

National income = 2,000.

Autonomous consumption = 400.

Investment expenditure = 200.

[CBSE Delhi 2015]

Sol. Given, national income (Y) = 2,000

Autonomous consumption (\bar{C}) = 400

Investment expenditure (I) = 200

At the equilibrium level,

$$Y = C + I$$

Or,

$$Y = \bar{C} + \text{MPC}(Y) + I$$

\Rightarrow

$$2,000 = 400 + \text{MPC}(2,000) + 200$$

\Rightarrow

$$2,000 = 600 + 2,000(\text{MPC})$$

$$\begin{aligned} \Rightarrow & 2,000 \text{ (MPC)} = 2,000 - 600 \\ \Rightarrow & 2,000 \text{ (MPC)} = 1,400 \\ \Rightarrow & \text{MPC} = \frac{1,400}{2,000} = 0.7 \end{aligned}$$

Ans. Marginal propensity to consume = 0.7.

13. An economy is in equilibrium. Calculate the investment expenditure from the following:

National income = 800.

Marginal propensity to save = 0.3.

Autonomous consumption = 100.

[CBSE (AI) 2015]

Sol. Given, national income (Y) = 800

Marginal propensity to save (MPS) = 0.3

Autonomous consumption (\bar{C}) = 100

$$\begin{aligned} \text{Marginal propensity to consume (MPC)} &= 1 - \text{MPS} \\ &= 1 - 0.3 = 0.7 \end{aligned}$$

At the equilibrium level,

$$Y = C + I$$

Or,

$$Y = \bar{C} + \text{MPC} (Y) + I$$

$$\Rightarrow 800 = 100 + 0.7 (800) + I$$

$$\Rightarrow 800 = 100 + 560 + I$$

$$\Rightarrow 800 = 660 + I$$

$$\Rightarrow I = 800 - 660 = 140$$

Ans. Investment expenditure = 140.

14. An economy is in equilibrium. Calculate the marginal propensity to save from the following:

National income = 1,000.

Autonomous consumption = 100.

Investment = 120.

[CBSE (AI) 2015]

Sol. Given, national income (Y) = 1,000

Autonomous consumption (\bar{C}) = 100

Investment (I) = 120

At the equilibrium level,

$$Y = C + I$$

Or,

$$Y = \bar{C} + \text{MPC} (Y) + I$$

$$\Rightarrow 1,000 = 100 + \text{MPC} (1,000) + 120$$

$$\Rightarrow 1,000 = 220 + 1,000 \text{ (MPC)}$$

$$\Rightarrow 1,000 \text{ (MPC)} = 1,000 - 220$$

$$\Rightarrow 1,000 \text{ (MPC)} = 780$$

$$\Rightarrow \text{MPC} = \frac{780}{1,000} = 0.78$$

$$\Rightarrow \text{MPS} = 1 - \text{MPC}$$

$$\text{MPS} = 1 - 0.78 = 0.22$$

Ans. Marginal propensity to save = 0.22.

15. An economy is in equilibrium. Calculate the national income from the following:

Autonomous consumption = 120.

Marginal propensity to save = 0.2.

Investment expenditure = 150.

[CBSE (AI) 2015]

Sol. Given, autonomous consumption (\bar{C}) = 120
 Marginal propensity to save (MPS) = 0.2
 Investment expenditure (I) = 150
 Marginal propensity to consume (MPC) = 1 – MPS
 = 1 – 0.2 = 0.8

At the equilibrium level,

$$\begin{aligned}
 & Y = C + I \\
 \text{Or,} & Y = \bar{C} + \text{MPC}(Y) + I \\
 \Rightarrow & Y = 120 + 0.8Y + 150 \\
 \Rightarrow & Y = 270 + 0.8Y \\
 \Rightarrow & Y - 0.8Y = 270 \\
 \Rightarrow & 0.2Y = 270 \\
 \Rightarrow & Y = \frac{270}{0.2} = 1,350
 \end{aligned}$$

Ans. National income = 1,350.

16. An economy is in equilibrium. Calculate marginal propensity to save from the following:
 National income = 1,000.
 Autonomous consumption = 100.
 Investment expenditure = 200. [CBSE (F) 2015]

Sol. Given, national income (Y) = 1,000
 Autonomous consumption (\bar{C}) = 100
 Investment expenditure (I) = 200

At the equilibrium level,

$$\begin{aligned}
 & Y = C + I \\
 \text{Or,} & Y = \bar{C} + \text{MPC}(Y) + I \\
 \Rightarrow & 1,000 = 100 + \text{MPC}(1,000) + 200 \\
 \Rightarrow & 1,000 = 300 + 1,000(\text{MPC}) \\
 \Rightarrow & 1,000(\text{MPC}) = 1,000 - 300 \\
 \Rightarrow & 1,000(\text{MPC}) = 700 \\
 \Rightarrow & \text{MPC} = \frac{700}{1,000} = 0.7 \\
 \Rightarrow & \text{MPS} = 1 - \text{MPC} \\
 \Rightarrow & \text{MPS} = 1 - 0.7 = 0.3
 \end{aligned}$$

Ans. Marginal propensity to save = 0.3.

17. An economy is in equilibrium. Find the investment expenditure from the following:
 National income = 750.
 Autonomous consumption = 200.
 Marginal propensity to save = 0.4. [CBSE (F) 2015]

Sol. Given, national income (Y) = 750
 Autonomous consumption (\bar{C}) = 200
 Marginal propensity to save (MPS) = 0.4
 Marginal propensity to consume (MPC) = 1 – MPS
 = 1 – 0.4 = 0.6

At the equilibrium level,

$$\begin{aligned}
 & Y = C + I \\
 \text{Or,} & Y = \bar{C} + \text{MPC}(Y) + I
 \end{aligned}$$

$$\begin{aligned} \Rightarrow & 750 = 200 + 0.6(750) + I \\ \Rightarrow & 750 = 200 + 450 + I \\ \Rightarrow & 750 = 650 + I \\ \Rightarrow & I = 750 - 650 = 100 \end{aligned}$$

Ans. Investment expenditure = 100.

18. An economy is in equilibrium. Calculate autonomous consumption from the following:

National income = 1,250.

Marginal propensity to save = 0.2.

Investment expenditure = 150.

[CBSE (F) 2015]

Sol. Given, national income (Y) = 1,250

Marginal propensity to save (MPS) = 0.2

Investment expenditure (I) = 150

$$\begin{aligned} \text{Marginal propensity to consume (MPC)} &= 1 - \text{MPS} \\ &= 1 - 0.2 = 0.8 \end{aligned}$$

At the equilibrium level,

$$Y = C + I$$

Or,

$$Y = \bar{C} + \text{MPC}(Y) + I$$

$$\Rightarrow 1,250 = \bar{C} + 0.8(1,250) + 150$$

$$\Rightarrow 1,250 = \bar{C} + 1,000 + 150$$

$$\Rightarrow 1,250 = \bar{C} + 1,150$$

$$\Rightarrow \bar{C} = 1,250 - 1,150 = 100$$

Ans. Autonomous consumption = 100.

19. In an economy investment is increased by ₹ 300 crore. If marginal propensity to consume is $\frac{2}{3}$, calculate increase in national income.

[CBSE Delhi 2016]

Sol. Given, increase in investment expenditure (ΔI) = ₹ 300 crore

Marginal propensity to consume (MPC) = $\frac{2}{3}$

$$\text{Multiplier (K)} = \frac{1}{1 - \text{MPC}} = \frac{1}{1 - \frac{2}{3}} = \frac{1}{\frac{1}{3}} = 3$$

We know,

$$K = \frac{\Delta Y}{\Delta I}$$

$$\begin{aligned} \Rightarrow \Delta Y &= K \times \Delta I \\ &= 3 \times 300 = 900 \end{aligned}$$

Ans. Increase in national income = ₹ 900 crore.

20. Suppose marginal propensity to consume is 0.8. How much increase in investment is required to increase national income by ₹ 2,000 crore? Calculate.

[CBSE Delhi 2016]

Sol. Given, desired increase in national income (ΔY) = ₹ 2,000 crore

Marginal propensity to consume (MPC) = 0.8

$$\text{Multiplier (K)} = \frac{1}{1 - \text{MPC}} = \frac{1}{1 - 0.8} = \frac{1}{0.2} = 5$$

We know,

$$K = \frac{\Delta Y}{\Delta I}$$

$$\Rightarrow \Delta I = \frac{\Delta Y}{K} = \frac{2,000}{5} = 400$$

Ans. Increase in investment = ₹ 400 crore.

21. In an economy an increase in investment by ₹ 100 crore led to 'increase' in national income by ₹ 1,000 crore. Find marginal propensity to consume. [CBSE Delhi 2016]

Sol. Given, increase in investment (ΔI) = ₹ 100 crore
 Increase in national income (ΔY) = ₹ 1,000 crore

We know,

$$\text{Multiplier (K)} = \frac{\Delta Y}{\Delta I} = \frac{1,000}{100} = 10$$

We also know,

$$K = \frac{1}{1 - \text{MPC}} \Rightarrow 10 = \frac{1}{1 - \text{MPC}}$$

$$\Rightarrow 1 - \text{MPC} = \frac{1}{10} \Rightarrow 1 - \text{MPC} = 0.1$$

$$\Rightarrow \text{MPC} = 1 - 0.1 = 0.9$$

Ans. Marginal propensity to consume = 0.9.

22. An economy is in equilibrium. Calculate marginal propensity to consume.
 National income = 1,000.
 Autonomous consumption expenditure = 200.
 Investment expenditure = 100.

[CBSE (AI) 2016]

Sol. Given, national income (Y) = 1,000
 Autonomous consumption expenditure (\bar{C}) = 200
 Investment expenditure (I) = 100

Now, we know that, $Y = C + I$

Here, $C = \bar{C} + bY$, where $b = \text{MPC}$

Putting the given values, we get

$$1,000 = 200 + b \times 1,000 + 100$$

$$1,000 = 300 + b \times 1,000$$

$$1,000b = 1,000 - 300$$

$$1,000b = 700$$

$$b = \frac{700}{1,000} = 0.7$$

Ans. Marginal propensity to consume = 0.7.

23. An economy is in equilibrium. Find investment expenditure.
 National income = 1,200.
 Autonomous consumption expenditure = 150.
 Marginal propensity to consume = 0.8.

[CBSE (AI) 2016]

Sol. Given, national income (Y) = 1,200
 Autonomous consumption expenditure (\bar{C}) = 150
 Marginal propensity to consume (MPC) = 0.8

At the equilibrium level,

$$Y = C + I$$

Or, $Y = \bar{C} + \text{MPC}(Y) + I$

$$1,200 = 150 + 0.8(1,200) + I$$

$$1,200 = 150 + 960 + I$$

$$1,200 = 1,110 + I$$

$$I = 1,200 - 1,110 = 90$$

Ans. Investment expenditure = 90.

24. An economy is in equilibrium. Find investment expenditure.

National income = 1,000.

Autonomous consumption = 100.

Marginal propensity to consume = 0.8

[CBSE (AI) 2016]

Sol. Given, national income (Y) = 1,000

Autonomous consumption (\bar{C}) = 100

Marginal propensity to consume (MPC) = 0.8

At the equilibrium level,

$$Y = C + I$$

Or,

$$Y = \bar{C} + MPC(Y) + I$$

$$1,000 = 100 + 0.8(1,000) + I$$

$$1,000 = 100 + 800 + I$$

$$1,000 = 900 + I$$

$$I = 1,000 - 900 = 100$$

Ans. Investment expenditure = 100.

25. Find equilibrium national income.

Autonomous consumption expenditure = 120.

Marginal propensity to consume = 0.9.

Investment expenditure = 1,100.

[CBSE (F) 2016]

Sol. Given, autonomous consumption expenditure (\bar{C}) = 120

Marginal propensity to consume (MPC) = 0.9

Investment expenditure (I) = 1,100

At the equilibrium level,

$$Y = C + I$$

Or,

$$Y = \bar{C} + MPC(Y) + I$$

$$Y = 120 + 0.9Y + 1,100$$

$$Y = 1,220 + 0.9Y$$

$$Y - 0.9Y = 1,220$$

$$0.1Y = 1,220$$

$$Y = \frac{1,220}{0.1} = 12,200$$

Ans. National income = 12,200.

26. An economy is in equilibrium. Find marginal propensity to consume.

Autonomous consumption expenditure = 100.

Investment expenditure = 100.

National income = 2,000.

[CBSE (F) 2016]

Sol. Given, autonomous consumption expenditure (\bar{C}) = 100

Investment expenditure (I) = 100

National income (Y) = 2,000

Now, we know that,

$$Y = C + I$$

Here, $C = \bar{C} + bY$, where $b = MPC$

Putting the given values, we get

$$2,000 = 100 + b \times 2,000 + 100$$

$$2,000 = 200 + b \times 2,000$$

$$2,000b = 2,000 - 200$$

$$2,000b = 1,800$$

$$b = \frac{1,800}{2,000} = 0.9$$

Ans. Marginal propensity to consume = 0.9.

27. An economy is in equilibrium. Find autonomous consumption expenditure.

National income = 1,600.

Investment expenditure = 300.

Marginal propensity to consume = 0.8.

[CBSE (F) 2016]

Sol. Given, national income (Y) = 1,600

Investment expenditure (I) = 300

Marginal propensity to consume (MPC) = 0.8

At the equilibrium level,

$$Y = C + I$$

$$\text{Or, } Y = \bar{C} + \text{MPC} (Y) + I$$

Putting the given values, we get

$$1,600 = \bar{C} + 0.8 (1,600) + 300$$

$$1,600 = \bar{C} + 1,280 + 300$$

$$1,600 = \bar{C} + 1,580$$

$$\bar{C} = 1,600 - 1,580 = 20$$

Ans. Autonomous consumption expenditure = 20.

28. If in an economy:

(a) Consumption function is given by $C = 100 + 0.75Y$, and

(b) Autonomous investment is ₹ 150 crore.

Estimate (i) Equilibrium level of income, and (ii) Consumption and Savings at the equilibrium level of income.

[CBSE Sample Paper 2017]

Sol. (i) Given, $C = 100 + 0.75Y$

Autonomous investment (\bar{I}) = ₹ 150 crore

At the equilibrium level,

$$Y = C + \bar{I}$$

$$Y = 100 + 0.75Y + 150$$

$$Y = 250 + 0.75Y$$

$$Y - 0.75Y = 250$$

$$0.25Y = 250$$

$$Y = \frac{250}{0.25} = 1,000$$

(ii) At $Y = 1,000$

Consumption, $C = 100 + 0.75Y$

$$= 100 + 0.75 (1,000)$$

$$= 100 + 750 = 850$$

We know that,

$$Y = C + S$$

Or,

$$S = Y - C$$

⇒

$$S = 1,000 - 850 = 150$$

Ans. (i) Equilibrium level of income = ₹ 1,000 crore.

(ii) Consumption at equilibrium level of income = ₹ 850 crore.

Savings at equilibrium level of income = ₹ 150 crore.

29. An economy is in equilibrium. From the following data about an economy, calculate autonomous consumption:

- (a) Income = 5,000.
- (b) Marginal propensity to save = 0.2.
- (c) Investment expenditure = 800.

[CBSE Delhi 2017]

Sol. Given, income (Y) = 5,000.

Marginal propensity to save (MPS) = 0.2.

Investment expenditure (I) = 800.

$$\begin{aligned}\text{Marginal propensity to consume (MPC)} &= 1 - \text{MPS} \\ &= 1 - 0.2 = 0.8\end{aligned}$$

Now, we know that $Y = C + I$

Here, $C = \bar{C} + bY$, where $b = \text{MPC}$

Putting the given values, we get

$$\begin{aligned}5,000 &= \bar{C} + 0.8(5,000) + 800 \\ 5,000 &= \bar{C} + 4,000 + 800 \\ 5,000 &= \bar{C} + 4,800 \\ \bar{C} &= 5,000 - 4,800 \\ &= 200\end{aligned}$$

Ans. Autonomous consumption = 200.

30. An economy is in equilibrium. From the following data about an economy, calculate investment expenditure:

- (a) Income = 10,000.
- (b) Marginal propensity to consume = 0.9.
- (c) Autonomous consumption = 100.

[CBSE Delhi 2017]

Sol. Given, income (Y) = 10,000

Marginal propensity to consume (MPC) = 0.9

Autonomous consumption (\bar{C}) = 100

Now, we know that

$$Y = C + I$$

Here, $C = \bar{C} + bY$, where $b = \text{MPC}$

Putting the given values, we get

$$\begin{aligned}10,000 &= 100 + 0.9(10,000) + I \\ 10,000 &= 100 + 9,000 + I \\ 10,000 &= 9,100 + I \\ I &= 10,000 - 9,100 \\ I &= 900\end{aligned}$$

Ans. Investment expenditure = 900.

31. An economy is in equilibrium. From the following data, calculate autonomous consumption:

- (a) Income = 10,000.
- (b) Marginal propensity to save = 0.2.
- (c) Investment = 1,500.

[CBSE Delhi 2017]

Sol. Given, income (Y) = 10,000

Marginal propensity to save (MPS) = 0.2

Investment (I) = 1,500

$$\begin{aligned}\text{Marginal propensity to consume (MPC)} &= 1 - \text{MPS} \\ &= 1 - 0.2 = 0.8\end{aligned}$$

Now, we know that $Y = C + I$

Here, $C = \bar{C} + bY$, where $b = \text{MPC}$

Putting the given values, we get

$$10,000 = \bar{C} + 0.8(10,000) + 1,500$$

$$10,000 = \bar{C} + 8,000 + 1,500$$

$$10,000 = \bar{C} + 9,500$$

$$\bar{C} = 10,000 - 9,500$$

$$= 500$$

Ans. Autonomous consumption = 500.

32. An economy is in equilibrium. From the following data, calculate the marginal propensity to save:

(a) Income = 10,000.

(b) Autonomous consumption = 500.

(c) Consumption expenditure = 8,000.

[CBSE (AI) 2017]

Sol. Given, income (Y) = 10,000

Autonomous consumption (\bar{C}) = 500

Consumption expenditure (C) = 8,000

We know that, $C = \bar{C} + \text{MPC}(Y)$

Putting the given values, we get

$$8,000 = 500 + \text{MPC}(10,000)$$

$$8,000 = 500 + 10,000(\text{MPC})$$

$$10,000(\text{MPC}) = 8,000 - 500$$

$$10,000(\text{MPC}) = 7,500$$

$$\text{MPC} = \frac{7,500}{10,000} = 0.75$$

$$\text{MPS} = 1 - \text{MPC}$$

$$= 1 - 0.75 = 0.25$$

Ans. Marginal propensity to save = 0.25.

33. An economy is in equilibrium. From the following data, calculate investment expenditure.

(i) Marginal propensity to consume = 0.9.

(ii) Autonomous consumption = 200.

(iii) Level of income = 10,000.

[CBSE (F) 2017]

Sol. Given, marginal propensity to consume (MPC) = 0.9.

Autonomous consumption (\bar{C}) = 200.

Level of income (Y) = 10,000.

At the equilibrium level,

$$Y = C + I$$

Or, $Y = \bar{C} + \text{MPC}(Y) + I$

$$10,000 = 200 + 0.9(10,000) + I$$

$$10,000 = 200 + 9,000 + I$$

$$10,000 = 9,200 + I$$

$$I = 10,000 - 9,200$$

$$= 800$$

Ans. Investment expenditure = 800.

34. In an economy, investment increased by 1,100 and as a result of it income increased by 5,500. Had the marginal propensity to save been 25 per cent, what would have been the increase in income?

[CBSE (F) 2017]

Sol. We know,

$$\begin{aligned}\text{Multiplier (K)} &= \frac{\Delta Y}{\Delta I} \\ &= \frac{5,500}{1,100} = 5\end{aligned}$$

When marginal propensity to save (MPS) is 25 per cent, i.e., $\frac{25}{100} = 0.25$

$$K = \frac{1}{\text{MPS}} = \frac{1}{0.25} = 4$$

As we know,

$$K = \frac{\Delta Y}{\Delta I}$$

⇒

$$\begin{aligned}\Delta Y &= K \times \Delta I \\ &= 4 \times 1,100 = 4,400\end{aligned}$$

Ans. Increase in income = 4,400.

35. In an economy $C = 200 + 0.5Y$ is the consumption function where C is the consumption expenditure and Y is the national income. Investment expenditure is ₹ 400 crore. Is the economy in equilibrium at an income level ₹ 1,500 crore? Justify your answer.

[CBSE Sample Paper 2019]

Sol. Given, consumption function, $C = 200 + 0.5Y$

Investment expenditure = ₹ 400 crore

At the equilibrium level,

$$\begin{aligned}Y &= C + I \\ Y &= 200 + 0.5Y + 400 \\ Y &= 600 + 0.5Y \\ Y - 0.5Y &= 600 \\ 0.5Y &= 600 \\ \frac{600}{0.5} &= 1,200\end{aligned}$$

Ans. The economy is in equilibrium when the equilibrium level of income is ₹ 1,200 crore. Accordingly, if the equilibrium income = ₹ 1,500 crore, the economy is not in equilibrium.

Reason: Equilibrium is struck only when income = expenditure = ₹ 1,200 crore.

36. If in an economy:

Change in initial investments (ΔI) = ₹ 500 crore.

Marginal propensity to save (MPS) = 0.2.

Find the values of the following:

(a) Investment multiplier (K).

(b) Change in final income (ΔY).

[CBSE 2019 (58/1/1)]

Sol. Given, change in initial investments (ΔI) = ₹ 500 crore

Marginal propensity to save (MPS) = 0.2

We know that,

$$\begin{aligned}\text{Multiplier (K)} &= \frac{1}{\text{MPS}} = \frac{1}{0.2} = 5 \\ \text{Increase in Income } (\Delta Y) &= K \times \Delta I \\ &= 5 \times 500 = 2,500\end{aligned}$$

Ans. Investment multiplier = 5.

Change in final income = ₹ 2,500 crore.

37. If in an economy:

Change in initial investments (ΔI) = ₹ 700 crore.

Marginal propensity to save (MPS) = 0.2.

Find the values of the following:

(a) Investment multiplier (K).

(b) Change in final income (ΔY).

[CBSE 2019 (58/1/2)]

Sol. Given, change in initial investments (ΔI) = ₹ 700 crore

Marginal propensity to save (MPS) = 0.2

We know that,

$$\text{Multiplier (K)} = \frac{1}{\text{MPS}} = \frac{1}{0.2} = 5$$

$$\begin{aligned}\text{Increase in Income } (\Delta Y) &= K \times \Delta I \\ &= 5 \times 700 = 3,500\end{aligned}$$

Ans. Investment multiplier = 5.

Change in final income = ₹ 3,500 crore.

38. If in an economy:

Change in initial investment (ΔI) = ₹ 1,200 crore.

Marginal propensity to save (MPS) = 0.2.

Find the values of:

(a) Investment multiplier (K).

(b) Change in final income (ΔY).

[CBSE 2019 (58/1/3)]

Sol. Given, change in initial investment (ΔI) = ₹ 1,200 crore

Marginal propensity to save (MPS) = 0.2

We know that,

$$\text{Multiplier (K)} = \frac{1}{\text{MPS}} = \frac{1}{0.2} = 5$$

$$\begin{aligned}\text{Increase in Income } (\Delta Y) &= K \times \Delta I \\ &= 5 \times 1,200 \\ &= 6,000\end{aligned}$$

Ans. Investment multiplier = 5.

Change in final income = ₹ 6,000 crore.

39. Calculate change in final income, if marginal propensity to consume (MPC) is 0.8 and change in initial investment is ₹ 1,000 crore.

[CBSE 2019 (58/2/1)]

Sol. Given, marginal propensity to consume (MPC) = 0.8

Change in initial investment (ΔI) = ₹ 1,000 crore

We know that,

$$\text{Multiplier (K)} = \frac{1}{1 - \text{MPC}} = \frac{1}{1 - 0.8} = \frac{1}{0.2} = 5$$

$$\begin{aligned}\text{Increase in Income } (\Delta Y) &= K \times \Delta I \\ &= 5 \times 1,000 = 5,000\end{aligned}$$

Ans. Change in final income = ₹ 5,000 crore.

40. Estimate the change in initial investment if marginal propensity to save (MPS) is 0.10 and change in final income is ₹ 15,000 crore.

[CBSE 2019 (58/2/2)]

Sol. Given, marginal propensity to save (MPS) = 0.10

Change in final income (ΔY) = ₹ 15,000 crore

We know that,

$$\text{Multiplier (K)} = \frac{1}{\text{MPS}} = \frac{1}{0.10} = 10$$

We also know,

$$K = \frac{\Delta Y}{\Delta I}$$
$$10 = \frac{15,000}{\Delta I}$$
$$\Delta I = \frac{15,000}{10} = 1,500$$

Ans. Change in initial investment = ₹ 1,500 crore.

41. Estimate the change in final income if marginal propensity to consume (MPC) is 0.75 and change in initial investment is ₹ 2,000 crore. [CBSE 2019 (58/2/3)]

Sol. Given, marginal propensity to consume (MPC) = 0.75
Change in initial investment (ΔI) = ₹ 2,000 crore

We know that,

$$\text{Multiplier (K)} = \frac{1}{1 - \text{MPC}} = \frac{1}{1 - 0.75} = \frac{1}{0.25} = 4$$

$$\text{Increase in Income } (\Delta Y) = K \times \Delta I$$
$$= 4 \times 2,000 = 8,000$$

Ans. Change in final income = ₹ 8,000 crore.

42. The saving function of an economy is given as:

$$S = -25 + 0.25Y$$

If the planned investment is ₹ 200 crore, calculate the following:

- (i) Equilibrium level of income in the economy.
- (ii) Aggregate demand at income of ₹ 500 crore.

[CBSE 2019 (58/5/1)]

Sol. Given, $S = -25 + 0.25Y$

Planned investment (I) = ₹ 200 crore

At equilibrium,

$$S = I$$

$$-25 + 0.25Y = 200$$

$$0.25Y = 200 + 25$$

$$0.25Y = 225$$

$$Y = \frac{225}{0.25} = 900$$

We know at equilibrium,

$$AD = C + I$$

$$= 25 + (1 - 0.25)Y + 200$$

$$= 25 + 0.75(500) + 200$$

$$= 25 + 375 + 200$$

$$= 600$$

Ans. (i) Equilibrium level of income in the economy = ₹ 900 crore.

(ii) Aggregate demand at income of ₹ 500 crore = ₹ 600 crore.

43. The saving function of an economy is given as:

$$S = (-) 10 + 0.20Y$$

If the ex-ante investments are ₹ 240 crore, calculate the following:

- (i) Equilibrium level of income in the economy.
- (ii) Additional investments which will be needed to double the present level of equilibrium income.

[CBSE 2019 (58/5/2)]

Sol. Given, $S = -10 + 0.20Y$

Ex-ante investments (I) = ₹ 240 crore

At equilibrium,

$$\begin{aligned}S &= I \\-10 + 0.20Y &= 240 \\0.20Y &= 240 + 10 \\0.20Y &= 250\end{aligned}$$

$$Y = \frac{250}{0.20} = 1,250$$

We know that,

$$\begin{aligned}K &= \frac{1}{MPS} \\K &= \frac{1}{0.20} = 5\end{aligned}$$

We also know that, multiplier (K) = $\frac{\Delta Y}{\Delta I}$

$$\begin{aligned}5 &= \frac{1,250}{\Delta I} \\ \Delta I &= \frac{1,250}{5} = 250\end{aligned}$$

Ans. (i) Equilibrium level of income in the economy = ₹ 1,250 crore.

(ii) Additional investments needed to double the present level of equilibrium income = ₹ 250 crore.

44. The saving function of an economy is given as:

$$S = (-) 50 + 0.10Y$$

If the ex-ante investments are ₹ 450 crore, calculate the following:

(i) Equilibrium level of income in the economy.

(ii) Additional investments which will be needed to gain an additional income level of ₹ 3,000 crore.

[CBSE 2019 (58/5/3)]

Sol. Given, $S = -50 + 0.10Y$

Ex-ante investments (I) = ₹ 450 crore

At equilibrium,

$$\begin{aligned}S &= I \\-50 + 0.10Y &= 450 \\0.10Y &= 450 + 50 \\0.10Y &= 500\end{aligned}$$

$$Y = \frac{500}{0.10} = 5,000$$

We know that,

$$\begin{aligned}K &= \frac{1}{MPS} \\K &= \frac{1}{0.10} = 10\end{aligned}$$

We also know that, multiplier (K) = $\frac{\Delta Y}{\Delta I}$

$$\Rightarrow 10 = \frac{3,000}{\Delta I}$$

$$\Rightarrow \Delta I = \frac{3,000}{10} = 300$$

Ans. (i) Equilibrium level of income in the economy = ₹ 5,000 crore.

(ii) Additional investments needed to gain an additional income level of ₹ 3,000 crore = ₹ 300 crore.

GOVERNMENT BUDGET AND THE ECONOMY

1. In a government budget, if revenue receipts = ₹ 100 lakh, capital receipts = ₹ 50 lakh and revenue deficit = ₹ 25 lakh, how much is the revenue expenditure?

Sol. Revenue expenditure = Revenue receipts + Revenue deficit
 $= ₹ 100 \text{ lakh} + ₹ 25 \text{ lakh}$
 $= ₹ 125 \text{ lakh}$

Ans. Revenue expenditure = ₹ 125 lakh.

2. Find Budget Deficit from the following data:

Items	(₹ in crore)
(i) Revenue receipts	40,000
(ii) Revenue expenditure	30,000
(iii) Capital receipts	30,000
(iv) Capital expenditure	50,000

Sol. Budget Deficit = (Revenue expenditure + Capital expenditure) – (Revenue receipts + Capital receipts)
 $= (₹ 30,000 \text{ crore} + ₹ 50,000 \text{ crore}) - (₹ 40,000 \text{ crore} + ₹ 30,000 \text{ crore})$
 $= ₹ 80,000 \text{ crore} - ₹ 70,000 \text{ crore}$
 $= ₹ 10,000 \text{ crore}$

Ans. Budget deficit = ₹ 10,000 crore.

3. Find Fiscal Deficit, given the following information:

Items	(₹)
(i) Estimated total expenditure of the government	1,50,000
(ii) Revenue receipts	1,20,000
(iii) Non-debt capital receipts	10,000

Sol. Fiscal Deficit = Total expenditure of the government – (Revenue receipts + Non-debt capital receipts)
 $= ₹ 1,50,000 - (₹ 1,20,000 + ₹ 10,000)$
 $= ₹ 1,50,000 - ₹ 1,30,000$
 $= ₹ 20,000$

Ans. Fiscal deficit = ₹ 20,000.

4. Payment of interest by the government during the year is estimated to be ₹ 75,000 while the excess of budgetary expenditure over budgetary receipts (net of borrowing) is estimated to be ₹ 1,15,000. Find primary deficit.

Sol. Fiscal Deficit = ₹ 1,15,000

Interest Payment = ₹ 75,000

Primary Deficit = Fiscal deficit – Interest payment
 $= ₹ 1,15,000 - ₹ 75,000$
 $= ₹ 40,000$

Ans. Primary deficit = ₹ 40,000.

5. From the following data about a government budget, find out (a) Revenue Deficit, (b) Fiscal Deficit, and (c) Primary Deficit:

Items	(₹ in crore)
(i) Revenue receipts	55
(ii) Capital receipts	42
(iii) Non-tax revenue	18
(iv) Borrowings	40

(v) Revenue expenditure	88
(vi) Interest payments	28

- Sol. (a) Revenue Deficit = Revenue expenditure – Revenue receipts
= ₹ 88 crore – ₹ 55 crore
= ₹ 33 crore
- (b) Fiscal Deficit = Borrowings
= ₹ 40 crore
- (c) Primary Deficit = Fiscal deficit – Interest payments
= ₹ 40 crore – ₹ 28 crore
= ₹ 12 crore

- Ans. (a) Revenue deficit = ₹ 33 crore.
(b) Fiscal deficit = ₹ 40 crore.
(c) Primary deficit = ₹ 12 crore.

6. From the following data about a government budget, find (a) Revenue Deficit, (b) Fiscal Deficit, and (c) Primary Deficit:

Items	(₹ in lakh)
(i) Tax revenue	50
(ii) Revenue expenditure	110
(iii) Capital expenditure	210
(iv) Non-tax revenue	30
(v) Capital receipts net of borrowing	140
(vi) Interest payments	20

- Sol. (a) Revenue Deficit = Revenue expenditure – Revenue receipts (Tax revenue + Non-tax revenue)
= ₹ 110 lakh – (₹ 50 lakh + ₹ 30 lakh)
= ₹ 110 lakh – ₹ 80 lakh
= ₹ 30 lakh
- (b) Fiscal Deficit = Revenue expenditure + Capital expenditure – Revenue receipts – Capital receipts net of borrowing
= ₹ 110 lakh + ₹ 210 lakh – (₹ 50 lakh + ₹ 30 lakh) – ₹ 140 lakh
= ₹ 110 lakh + ₹ 210 lakh – ₹ 80 lakh – ₹ 140 lakh
= ₹ 320 lakh – ₹ 220 lakh
= ₹ 100 lakh
- (c) Primary Deficit = Fiscal deficit – Interest payments
= ₹ 100 lakh – ₹ 20 lakh
= ₹ 80 lakh

- Ans. (a) Revenue deficit = ₹ 30 lakh.
(b) Fiscal deficit = ₹ 100 lakh.
(c) Primary deficit = ₹ 80 lakh.

7. Find (a) Fiscal Deficit, and (b) Primary Deficit from the following:

Items	(₹ in crore)
Revenue expenditure	= 70,000
Borrowings	= 15,000
Revenue receipts	= 50,000
Interest payments	= 25% of revenue deficit.

[CBSE Sample Paper 2013]

Sol. Revenue Deficit = Revenue expenditure – Revenue receipts
 = ₹ 70,000 crore – ₹ 50,000 crore
 = ₹ 20,000 crore

Here, Interest payments = 25% of revenue deficit

Or, Interest payments = $\frac{25}{100} \times 20,000$
 = ₹ 5,000 crore

(a) Fiscal Deficit = Borrowings
 = ₹ 15,000 crore

(b) Primary Deficit = Fiscal deficit – Interest payments
 = ₹ 15,000 crore – ₹ 5,000 crore
 = ₹ 10,000 crore

Ans. (a) Fiscal deficit = ₹ 15,000 crore.

(b) Primary deficit = ₹ 10,000 crore.

8. Is the following revenue expenditure or capital expenditure in the context of government budget? Give reason.

- (i) Expenditure on collection of taxes.
- (ii) Expenditure on purchasing computers.

Sol. (i) Expenditure on collection of taxes is a revenue expenditure because it neither causes a rise in assets of the government nor does it lead to a reduction in the liabilities of the government.
 (ii) Expenditure on purchasing computers is a capital expenditure because this results in the creation of assets for the government. Hence, such expenditures add to the assets of the government.

9. Is the following revenue receipt or a capital receipt in the context of government budget and why?

- (i) Tax receipts.
- (ii) Disinvestment.

Sol. (i) Tax receipt is a revenue receipt because it neither creates any liability nor reduces the assets of the government.
 (ii) Disinvestment is a capital receipt. Capital receipts either create a liability or lead to a reduction in the assets of the government. Disinvestment results in the reduction of assets of the government.

10. Giving reason, state whether the following is a revenue expenditure or a capital expenditure in a government budget:

- (i) Expenditure on scholarship.
- (ii) Expenditure on building a bridge.

Sol. (i) Expenditure on scholarship is a revenue expenditure because it neither reduces liability nor adds to the assets of the government.
 (ii) Expenditure on building a bridge is a capital expenditure because it adds to the assets of the government.

11. Giving reasons, classify the following into revenue receipts and capital receipts:

- (i) Recovery of loans.
- (ii) Profits of public sector undertakings.
- (iii) Borrowings.

[CBSE (F) 2017]

Sol. (i) Recovery of loans is a capital receipt because it leads to reduction in assets of the government.
 (ii) Profits of public sector undertakings are revenue receipts because they neither create a liability for the government nor lead to reduction in assets of the government.
 (iii) Borrowings are capital receipts because they create a liability for the government.

12. Classify the following statements as revenue receipts or capital receipts. Give valid reasons in support of your answer.

- (i) Financial help from a multinational corporation for victims in a flood affected area.
- (ii) Sale of shares of a Public Sector Undertaking (PSU) to a private company, Y Ltd.
- (iii) Dividends paid to the Government by the State Bank of India.
- (iv) Borrowings from International Monetary Fund (IMF). [CBSE 2019 (58/2/1)]

- Sol. (i) Financial help from a multinational corporation for victims in a flood affected area is a revenue receipt, as it does not add to liability or does not lead to reduction in assets.
- (ii) Sale of shares of a Public Sector Undertaking (PSU) to a private company, Y Ltd. is a capital receipt, as it involves reduction in assets.
- (iii) Dividends paid to the government by the State Bank of India is a revenue receipt, as it does not add to liability or does not lead to reduction in assets.
- (iv) Borrowings from International Monetary Fund (IMF) are capital receipts because they create a liability.

13. Given the following data estimate the values of (a) Revenue Deficit, and (b) Fiscal Deficit:

Items	(₹ in crore)
(i) Tax revenue	1,000
(ii) Non-tax revenue	150
(iii) Net borrowings by government	780
(iv) Disinvestment proceeds	50
(v) Revenue expenditure	1,500
(vi) Capital expenditure	480

[CBSE 2019 (58/3/1)]

- Sol. (a) Revenue Deficit = Revenue expenditure – Revenue receipts (Tax revenue + Non-tax revenue)
- $$= ₹ 1,500 \text{ crore} - (₹ 1,000 \text{ crore} + ₹ 150 \text{ crore})$$
- $$= ₹ 1,500 \text{ crore} - ₹ 1,150 \text{ crore}$$
- $$= ₹ 350 \text{ crore}$$
- (b) Fiscal Deficit = Net borrowings by government
- $$= ₹ 780 \text{ crore}$$

- Ans. (a) Revenue deficit = ₹ 350 crore.
- (b) Fiscal deficit = ₹ 780 crore.

BALANCE OF PAYMENTS

1. Find the value of imports, if balance of trade = ₹ 180 crore and value of exports = ₹ 280 crore.

- Sol. Balance of Trade = Value of exports – Value of imports
- $$₹ 180 \text{ crore} = ₹ 280 \text{ crore} - \text{Value of imports}$$
- $$\text{Value of imports} = ₹ 280 \text{ crore} - ₹ 180 \text{ crore}$$
- $$= ₹ 100 \text{ crore}$$

Ans. Value of imports = ₹ 100 crore.

2. If balance of trade is found to be in a state of balance, find the deficit on account of 'invisibles' if balance of payments on capital account shows a surplus of ₹ 20,000 on account of borrowing from rest of the world.

Sol. Deficit on account of invisibles = ₹ 20,000.

3. Find Current Account Balance from the following:

Items	(₹ in crore)
(i) Export of goods	80
(ii) Export of services	20
(iii) Balance of visible trade	50
(iv) Transfers from one country to an another country	5

Sol. Current Account Balance = Balance of visible trade + Export of services + Transfers from one country to an another country
= ₹ 50 crore + ₹ 20 crore + ₹ 5 crore
= ₹ 75 crore

Ans. Current account balance = ₹ 75 crore.

4. Find the Balance on the Balance of Payments Account. Is the overall balance of payments balances?

Items	(₹ in lakh)
(i) Capital account balance	(-) 400
(ii) Value of imports	150
(iii) Value of exports	450
(iv) Unilateral transfers	100
(v) Balance of visible trade	200

Sol. Balance on the Balance of Payments Account
= Value of exports – Value of imports + Unilateral transfers + Capital account balance
= ₹ 450 lakh – ₹ 150 lakh + ₹ 100 lakh + (-) ₹ 400 lakh
= ₹ 450 lakh – ₹ 150 lakh + ₹ 100 lakh – ₹ 400 lakh
= 0

Ans. Balance on the balance of payments account is 0 (zero). Yes, the overall balance of payments balances.

[Note: Balance of visible trade excludes the balance of invisible trade.]



UNSOLVED NUMERICALS

NATIONAL INCOME AND RELATED AGGREGATES

Numericals related to Nominal GDP

1. If the Real GDP is 660 and price index (with base = 100) is 105, calculate Nominal GDP.
[Ans. Nominal GDP = 693]
2. If real income is ₹ 820 and price index is 110, find nominal income.
[Ans. Nominal income = ₹ 902]

Numericals related to Real GDP

3. If the Nominal GDP is ₹ 1,050 and price index (with base = 100) is 125, calculate Real GDP.
[Ans. Real GDP = ₹ 840]
4. If nominal income is ₹ 550 and price index is 110, calculate real income.
[Ans. Real income = ₹ 500]
5. If nominal income is ₹ 220 and price index is 100, find real income.
[Ans. Real income = ₹ 220]

Numericals related to Price Index

6. If the Real GDP is 440 and Nominal GDP is 495, calculate price index (base = 100).
[Ans. Price index = 112.5]
7. If the Real Gross Domestic Product is ₹ 260 and the Nominal Gross Domestic Product is ₹ 312, calculate the price index (base = 100).
[Ans. Price index = 120]

METHODS OF CALCULATING NATIONAL INCOME

Numericals related to Value Added/Product Method

1. From the following about firm 'X', calculate 'Gross Value Added at Factor Cost' by it:

Items	(₹ in thousand)
(i) Sales	500
(ii) Opening stock	30
(iii) Closing stock	20
(iv) Purchase of intermediate products	300
(v) Purchase of machinery	150
(vi) Subsidy	40

[Ans. Gross value added at factor cost by firm X = ₹ 230 thousand]

2. From the following about firm 'Y', calculate 'Net Value Added at Market Price' by it:

Items	(₹ in thousand)
(i) Sales	300
(ii) Depreciation	20
(iii) Net indirect taxes	30
(iv) Purchase of intermediate products	150
(v) Change in stock	(-) 10
(vi) Purchase of machinery	100

[Ans. Net value added at market price by firm Y = ₹ 120 thousand]

3. From the following data, calculate 'Gross Value Added at Factor Cost':

Items	(₹)
(i) Units of output sold	1,000
(ii) Change in stock	100
(iii) Subsidies	300
(iv) Consumption of fixed capital	500
(v) Intermediate consumption	7,000
(vi) Price per unit of output	10
(vii) Rent	700

[Ans. Gross value added at factor cost = ₹ 3,400]

4. Calculate 'Net Value Added at Factor Cost' from the following data:

Items	(₹ in crore)
(i) Sales	1,760
(ii) Depreciation	80
(iii) Change in stock	(-) 30
(iv) Intermediate cost	1,000
(v) Exports	150
(vi) Indirect taxes	40

[Ans. Net value added at factor cost = ₹ 610 crore]

5. Calculate 'Sales' from the following data:

Items	(₹ in lakh)
(i) Subsidies	100
(ii) Opening stock	200
(iii) Closing stock	600
(iv) Intermediate consumption	2,000
(v) Consumption of fixed capital	500
(vi) Profit	750
(vii) Net value added at factor cost	2,500

[Ans. Sales = ₹ 4,500 lakh]

6. Calculate 'Intermediate Consumption' from the following data:

Items	(₹ in lakh)
(i) Subsidies	200
(ii) Opening stock	100
(iii) Closing stock	600
(iv) Sales	5,000
(v) Consumption of fixed capital	700

(vi) Profit	750
(vii) Net value added at factor cost	2,000

[Ans. Intermediate consumption = ₹ 3,000 lakh]

7. From the following data, calculate 'Net Value Added at Market Price' by Firm A:

Items	(₹ in crore)
(i) Sales	850
(ii) Net indirect taxes	80
(iii) Change in stock	(-) 30
(iv) Purchase of machinery	300
(v) Depreciation	70
(vi) Purchase of intermediate products	450

[Ans. Net value added at market price by firm A = ₹ 300 crore]

8. Calculate 'Value of Output' from the following data:

Items	(₹ in lakh)
(i) Subsidy	10
(ii) intermediate consumption	150
(iii) Net addition to stocks	(-) 13
(iv) Depreciation	30
(v) Excise duty	20
(vi) Net value added at factor cost	250

[Ans. Value of output = ₹ 440 lakh]

Numericals related to Income Method

9. Calculate 'Operating Surplus' from the following data:

Items	(₹ in crore)
(i) Rent	120
(ii) Profit	200
(iii) Domestic income	800
(iv) Mixed income	70
(v) Wages and salaries	350
(vi) Indirect tax	150
(vii) Subsidies	50
(viii) Depreciation	200

[Ans. Operating surplus = ₹ 380 crore]

10. From the following data, calculate 'National Income':

Items	(₹ in crore)
(i) Compensation of employees	800
(ii) Rent	200
(iii) Wages and salaries	750
(iv) Net exports	(-) 30
(v) Net factor income from abroad	(-) 20
(vi) Profit	300
(vii) Interest	100
(viii) Depreciation	50

(ix) Remittances from abroad	80
(x) Taxes on profits	60

[Ans. National income = ₹ 1,380 crore]

11. From the following data, calculate 'Net National Product at Market Price':

Items	(₹ in crore)
(i) Corporation tax	350
(ii) Compensation of employees	800
(iii) Mixed income of self-employed	900
(iv) Net factor income from abroad	(-) 50
(v) Net indirect taxes	250
(vi) Rent	350
(vii) Profit	600
(viii) Consumption of fixed capital	200
(ix) Interest	450

[Ans. Net national product at market price = ₹ 3,300 crore]

12. Find (a) Net National Product at Market Price, and (b) Gross National Product at Factor Cost:

Items	(₹ in lakh)
(i) Wages and salaries	900
(ii) Rent	150
(iii) Net current transfers to abroad	10
(iv) Net indirect taxes	70
(v) Royalty	50
(vi) Profit	250
(vii) Net factor income to abroad	(-) 20
(viii) Consumption of fixed capital	170
(ix) Social security contribution by employers	160
(x) Social security contribution by employees	40
(xi) Interest	500

[Ans. (a) Net national product at market price = ₹ 2,100 lakh]

(b) Gross national product at factor cost = ₹ 2,200 lakh]

13. Calculate 'Gross National Product at Market Price' from the following data:

Items	(₹ in crore)
(i) Compensation of employees	2,000
(ii) Interest	500
(iii) Rent	700
(iv) Profits	800
(v) Employer's contribution to social security schemes	200
(vi) Dividends	300
(vii) Consumption of fixed capital	100
(viii) Net indirect taxes	250
(ix) Net exports	70
(x) Net factor income to abroad	150
(xi) Mixed income of self-employed	1,500

[Ans. Gross national product at market price = ₹ 5,700 crore]

14. Calculate 'Net National Product at Factor Cost' from the following:

Items	(₹ in crore)
(i) Profits	300
(ii) Wages and salaries	600

(iii) Net current transfers to abroad	20
(iv) Rent	200
(v) Net factor income paid to abroad	50
(vi) Interest	300
(vii) Social security contributions by employers	100

[Ans. Net national product at factor cost = ₹ 1,450 crore]

15. From the following data, calculate 'National Income':

Items	(₹ in crore)
(i) Net indirect taxes	500
(ii) Mixed income of self-employed	1,200
(iii) Net factor income from abroad	(-) 50
(iv) Compensation of employees	1,300
(v) Net retained earnings of private enterprises	200
(vi) Profit	800
(vii) Rent	600
(viii) Corporation tax	400
(ix) Interest	700
(x) Subsidy	200

[Ans. National income = ₹ 4,550 crore]

Numericals related to Expenditure Method

16. Calculate GDP_{MP} and NDP_{MP} with the help of expenditure method from the data give below:

Items	(₹ in crore)
(i) Corporate tax	50
(ii) Private final consumption expenditure	7,100
(iii) Fixed capital formation	3,000
(iv) Net exports	(-) 300
(v) Net factor income from abroad	(-) 500
(vi) Net indirect taxes	600
(vii) Government final consumption expenditure	2,200
(viii) Change in stock	800
(ix) Consumption of fixed capital	450

[Ans. GDP_{MP} = ₹ 12,800 crore

NDP_{MP} = ₹ 12,350 crore]

17. Calculate 'Net Domestic Product at Factor Cost' and 'Gross National Product at Market Price' from the following data:

Items	(₹ in crore)
(i) Indirect taxes	20
(ii) Private final consumption expenditure	250
(iii) Net factor income from abroad	15
(iv) Government final consumption expenditure	50
(v) Consumption of fixed capital	25
(vi) Net exports	(-) 10

(vii) Subsidies	10
(viii) Net domestic capital formation	30

[Ans. Net domestic product at factor cost = ₹ 310 crore
Gross national product at market price = ₹ 360 crore]

18. Calculate 'National Income' from the following:

Items	(₹ in lakh)
(i) Net change in stocks	50
(ii) Government final consumption expenditure	100
(iii) Net current transfers to abroad	30
(iv) Gross domestic fixed capital formation	200
(v) Private final consumption expenditure	500
(vi) Net imports	40
(vii) Depreciation	70
(viii) Net factor income to abroad	(-) 10
(ix) Net indirect tax	120
(x) Net capital transfers to abroad	25

[Ans. National income = ₹ 630 lakh]

19. From the following data, calculate 'Net National Product at Market Price':

Items	(₹ in crore)
(i) Private consumption expenditure	75,000
(ii) Government consumption expenditure	15,550
(iii) Gross capital formation	4,500
(iv) Exports	6,000
(v) Imports	9,000
(vi) Net factor income from abroad	(-) 650
(vii) Depreciation	600

[Ans. Net national product at market price = ₹ 90,800 crore]

20. From the following data, find out 'National Income':

Items	(₹ in crore)
(i) Private final consumption expenditure	18,550
(ii) Government final consumption expenditure	20,510
(iii) Consumption of fixed capital	2,000
(iv) Gross domestic fixed capital formation	9,860
(v) Exports	13,720
(vi) Imports	15,000
(vii) Net factor income from abroad	(-) 110
(viii) Change in stock	2,560
(ix) Goods and Services tax	2,700
(x) Subsidy	100

[Ans. National income = ₹ 45,490 crore]

Miscellaneous Numericals

21. From the following data, estimate (a) Net Indirect Taxes, and (b) Net Domestic Product at Factor Cost:

Items	(₹ in crore)
(i) Net national product at market price	1,400
(ii) Net factor income from abroad	(-) 20

(iii) Gross national product at factor cost	1,300
(iv) Consumption of fixed capital	100
(v) National debt interest	18

[Ans. (a) Net indirect taxes = ₹ 200 crore

(b) Net domestic product at factor cost = ₹ 1,220 crore]

22. From the following data, calculate National Income by (a) Income Method, and (b) Expenditure Method:

Items	(₹ in crore)
(i) Private final consumption expenditure	2,000
(ii) Net capital formation	400
(iii) Change in stock	50
(iv) Compensation of employees	1,900
(v) Rent	200
(vi) Interest	150
(vii) Operating surplus	720
(viii) Net indirect tax	400
(ix) Employers' contribution to social security schemes	100
(x) Net exports	20
(xi) Net factor income from abroad	(-) 20
(xii) Government final consumption expenditure	600
(xiii) Consumption of fixed capital	100

[Ans. National income (by income and expenditure methods) = ₹ 2,600 crore]

23. From the following data calculate Net National Product at Factor Cost by (a) Income Method, and (b) Expenditure Method:

Items	(₹ in crore)
(i) Current transfers from rest of the world	100
(ii) Government final consumption expenditure	1,000
(iii) Wages and salaries	3,800
(iv) Dividend	500
(v) Rent	200
(vi) Interest	150
(vii) Net domestic capital formation	500
(viii) Profits	800
(ix) Employers' contribution to social security schemes	200
(x) Net exports	(-) 50
(xi) Net factor income from abroad	(-) 30
(xii) Consumption of fixed capital	40
(xiii) Private final consumption expenditure	4,000
(xiv) Net indirect tax	300

[Ans. Net national product at factor cost (by income and expenditure methods) = ₹ 5,120 crore]

24. From the following data relating to a firm, (a) estimate the Net Value Added at Market Price, (b) show that Net Value Added at Factor Cost is equal to the sum of factor incomes.

Items	(₹ in thousand)
(i) Salaries and wages	120
(ii) Interest payments	90
(iii) Dividends	30

(iv) Undistributed profits	20
(v) Rent payments	15
(vi) Increase in stocks	40
(vii) Imports of raw material	20
(viii) Indirect taxes	10
(ix) Depreciation of fixed capital	15
(x) Domestic sales	360
(xi) Exports	40
(xii) Domestic purchase of raw materials and other inputs	120

[Ans. (a) Net value added at market price = ₹ 285 thousand

(b) Net value added at factor cost = Sum of factor incomes = ₹ 275 thousand]

25. From the following data, estimate 'Gross National Product at Market Price':

Items	(₹ in crore)
(i) Gross domestic product at factor cost	750
(ii) Corporation tax	20
(iii) Net other current transfers from general government	110
(iv) Net indirect taxes	130
(v) Net other current transfers from abroad	80
(vi) Net factor income from abroad	(-)70
(vii) Saving of the private corporate sector	60

[Ans. Gross national product at market price = ₹ 810 crore]

26. From the following data, calculate (a) Domestic Income, and (b) National Income.

Items	(₹ in crore)
(i) Compensation of employees	15,000
(ii) Interest	1,500
(iii) Undistributed profit and dividends	1,800
(iv) Rent	2,400
(v) Mixed income of self-employed	9,000
(vi) Net factor income from abroad	3,000

[Ans. (a) Domestic factor income = ₹ 29,700 crore

(b) National income = ₹ 32,700 crore]

27. From the following data, calculate Gross National Product at Market Price by (a) Income Method, and (b) Expenditure Method:

Items	(₹ in crore)
(i) Compensation of employees	400
(ii) Profit	250
(iii) Mixed income of self-employed	300
(iv) Rent	80
(v) Interest	70
(vi) Private final consumption expenditure	700
(vii) Net domestic capital formation	120
(viii) Consumption of fixed capital	100
(ix) Net exports	(-) 10
(x) Government final consumption expenditure	350

(xi) Net indirect taxes	60
(xii) Net factor income from abroad	(-) 10

[Ans. Gross national product at market price (by income and expenditure methods) = ₹ 1,250 crore]

28. From the following data, find out (a) Gross Domestic Product at Market Price, and (b) National Income:

Items	(₹ in crore)
(i) Private final consumption expenditure	21,525
(ii) Government final consumption expenditure	16,260
(iii) Consumption of fixed capital	7,680
(iv) Gross domestic fixed capital formation	12,565
(v) Exports (X)	12,860
(vi) Imports (M)	13,985
(vii) Net factor income from abroad	(-) 275
(viii) Change in stock	5,000

[Ans. (a) Gross domestic product at market price = ₹ 54,225 crore

(b) National income = ₹ 46,270 crore]

29. Calculate Gross National Product at Market Price by (a) Income Method, and (b) Expenditure Method:

Items	(₹ in crore)
(i) Net exports	10
(ii) Rent	20
(iii) Private final consumption expenditure	400
(iv) Interest	30
(v) Dividends	45
(vi) Undistributed profits	5
(vii) Corporate tax	10
(viii) Government final consumption expenditure	100
(ix) Net domestic capital formation	50
(x) Compensation of employees	400
(xi) Consumption of fixed capital	10
(xii) Net indirect taxes	50
(xiii) Net factor income from abroad	(-) 10

[Ans. Gross national product at market price (by income and expenditure methods) = ₹ 560 crore]

30. From the following data, calculate National Income by (a) Income Method, and (b) Expenditure Method:

Items	(₹ in crore)
(i) Interest	150
(ii) Rent	250
(iii) Government final consumption expenditure	600
(iv) Private final consumption expenditure	1,200
(v) Profits	640
(vi) Compensation of employees	1,000
(vii) Net factor income to abroad	30
(viii) Net indirect taxes	60
(ix) Net exports	(-) 40
(x) Consumption of fixed capital	50
(xi) Net domestic capital formation	340

[Ans. National income (by income and expenditure methods) = ₹ 2,010 crore]

AGGREGATE DEMAND, AGGREGATE SUPPLY AND RELATED CONCEPTS

- Find the value of C , when $\bar{C} = 50$, $Y = 500$ and marginal propensity to consume is 0.2.
[Ans. $C = 150$]
- Find saving, when $\bar{S} = (-) 100$, $Y = 500$ and marginal propensity to save = 0.4.
[Ans. Saving = 100]
- Find the values of marginal propensity to consume and marginal propensity to save from the following data:

Income (₹)	Saving (₹)
750	150
1,000	200

[Ans. MPC = 0.8; MPS = 0.2]

- What will be the value of average propensity to save when
 - $C = 200$ at $Y = 1,000$?
 - $S = 450$ at $Y = 1,200$?

[Ans. (i) APS = 0.8 (ii) APS = 0.375]

- Complete the following table:

Level of Income (₹)	Consumption Expenditure (₹)	Marginal Propensity to Consume	Marginal Propensity to Save
1,000	900	—	—
1,200	1,060	—	—
1,400	1,210	—	—
1,600	1,350	—	—

[Ans. MPC: —, 0.8, 0.75, 0.7; MPS: —, 0.2, 0.25, 0.3]

- Complete the following table:

Income (₹)	Consumption Expenditure (₹)	Marginal Propensity to Consume	Average Propensity to Save
0	20	—	—
50	55	—	—
100	90	—	—
150	125	—	—

[Ans. MPC: —, 0.7, 0.7, 0.7; APS: —, -0.1, 0.1, 0.16]

- Complete the following table:

Income (₹)	Marginal Propensity to Consume	Saving (₹)	Average Propensity to Save	Average Propensity to Consume
0	0.5	-80	—	—
50	0.5	—	—	—
100	0.5	—	—	—
150	0.5	—	—	—
200	0.5	—	—	—

[Hint: $C = \bar{C} + MPC(Y)$; where, $\bar{C} = 80$ at $Y = 0$ and $MPC = 0.5$.]

[Ans. Saving: -80, -55, -30, -5, 20; APS: —, -1.1, -0.3, -0.03, 0.1; APC: —, 2.1, 1.3, 1.03, 0.9]

SHORT RUN EQUILIBRIUM OUTPUT

- If the value of multiplier is 4
 - what will be MPC and MPS?
 - what will be marginal propensity to consume when marginal propensity to save is 0.2?

[Ans. (i) $MPC = 0.75$, $MPS = 0.25$
(ii) $MPC = 0.8$]
- In an economy, investment expenditure is increased by ₹ 700 crore. The marginal propensity to consume is 0.9. Calculate the total increase in income and consumption expenditure.

[Ans. Increase in income = ₹ 7,000 crore
Increase in consumption expenditure = ₹ 6,300 crore]
- In an economy, investment expenditure is increased by ₹ 400 crore and marginal propensity to consume is 0.8. Calculate the total increase in income and saving.

[Ans. Increase in income = ₹ 2,000 crore
Increase in saving = ₹ 400 crore]
- In an economy, investment is increased by ₹ 600 crore. If the marginal propensity to consume is 0.6, calculate the total increase in income and consumption expenditure.

[Ans. Increase in income = ₹ 1,500 crore
Increase in consumption expenditure = ₹ 900 crore]
- A ₹ 200 crore increase in investment leads to a rise in national income by ₹ 1,000 crore. Find out marginal propensity to consume.

[Ans. $MPC = 0.8$]
- An increase in investment leads to total rise in national income by ₹ 500 crore. If marginal propensity to consume is 0.9. What is the increase in investment? Calculate.

[Ans. Increase in investment = ₹ 50 crore]
- Given marginal propensity to save equal to 0.25, what will be the increase in national income if investment increases by ₹ 125 crore? Calculate.

[Ans. Increase in national income = ₹ 500 crore]
- It is planned to increase national income by ₹ 1,000 crore. How much increase in investment is required to achieve this goal? Assume that marginal propensity to consume is 0.6. Calculate.

[Ans. Desired increase in investment = ₹ 400 crore]
- An increase in investment by ₹ 400 crore leads to increase in national income by ₹ 1,600 crore. Calculate marginal propensity to consume.

[Ans. $MPC = 0.75$]
- An increase in investment by ₹ 500 crore leads to increase in national income by ₹ 2,500 crore. Calculate marginal propensity to consume and change in saving.

[Ans. $MPC = 0.8$; Change in saving = ₹ 500 crore]

GOVERNMENT BUDGET AND THE ECONOMY

- Total expenditure of a government budget is ₹ 75,000 crore and total receipts is ₹ 45,000 crore. How much is the budget deficit?

[Ans. Budget deficit = ₹ 30,000 crore]
 - Calculate Budgetary Deficit from following data:
- | Items | (₹ in crore) |
|--------------------------|--------------|
| (i) Revenue expenditure | 60,000 |
| (ii) Capital expenditure | 30,000 |

(iii) Revenue receipts	50,000
(iv) Capital receipts	25,000

[Ans. Budgetary deficit = ₹ 15,000 crore]

3. Find Fiscal Deficit from the information given below:

Items	(₹ in lakh)
(i) Borrowing by the government	600
(ii) Revenue receipts	100
(iii) Capital receipts	750
(iv) Interest payment	150

[Ans. Fiscal deficit = ₹ 600 lakh]

4. Find Primary Deficit from the following data:

Items	(₹ in crore)
(i) Fiscal deficit	9,000
(ii) Interest payment by the government	900

[Ans. Primary deficit = ₹ 8,100 crore]

5. In a government budget, primary deficit is ₹ 10,000 crore and interest payment is ₹ 8,000 crore. How much is the fiscal deficit?

[Ans. Fiscal deficit = ₹ 18,000 crore]

BALANCE OF PAYMENTS

1. The balance of trade shows a deficit of ₹ 4,000 crore and the value of imports are ₹ 10,000 crore. What is the value of exports?

[Ans. Value of exports = ₹ 6,000 crore]

2. The balance of trade shows a deficit of ₹ 500 crore. The value of exports are ₹ 400 crore. What is the value of imports?

[Ans. Value of imports = ₹ 900 crore]

3. Find Current Account Balance from the following data:

Items	(₹ in lakh)
(i) Balance of visible trade	9,000
(ii) Export of services	9,000
(iii) Import of services	3,000

[Ans. Current account balance = ₹ 15,000 lakh]

4. Find the Balance on Non-factor Services from the following information:

Items	(₹ in crore)
(i) Balance of visible trade	500
(ii) Income	200
(iii) Transfers	100
(iv) Current account balance	900

[Ans. Balance on non-factor services = ₹ 100 crore]

5. If balance of trade shows a surplus of ₹ 300 crore and receipt of unilateral payments is ₹ 50 crore, how much is the balance on the capital account of balance of payments?

[Ans. Capital account shows a deficit of ₹ 350 crore]





PROJECT WORK

MULTIPLIER AND ITS APPLICATION IN THE INDIAN ECONOMY

Multiplier establishes a relationship between increase in autonomous investment (ΔI) and increase in GDP (ΔY). It is expressed as under:

$$K = \frac{\Delta Y}{\Delta I}$$

(Here, K = Multiplier; ΔY = Change in GDP; ΔI = Change in investment.)

Thus, multiplier is simply the ratio between ΔY (change in GDP) and ΔI (change in investment). To illustrate, if investment increases by ₹ 5 crore, and consequently GDP increases by ₹ 20 crore, then:

$K = \frac{\Delta Y}{\Delta I} = \frac{20}{5} = 4$. It signifies that due to an increase in investment (by ₹ 5 crore), income increases by a factor of 4 or that increase in GDP = $5 \times 4 = ₹ 20$ crore.

Thus:

$$\begin{array}{ccc} \Delta I \cdot K = \Delta Y & & \\ \downarrow \downarrow \downarrow & & \\ 5 \times 4 = 20 & & \end{array}$$

$$K = \frac{\Delta Y}{\Delta I}$$

Or, $\Delta I \cdot K = \Delta Y$

K : Multiplier

ΔY : Change in GDP

ΔI : Change in investment

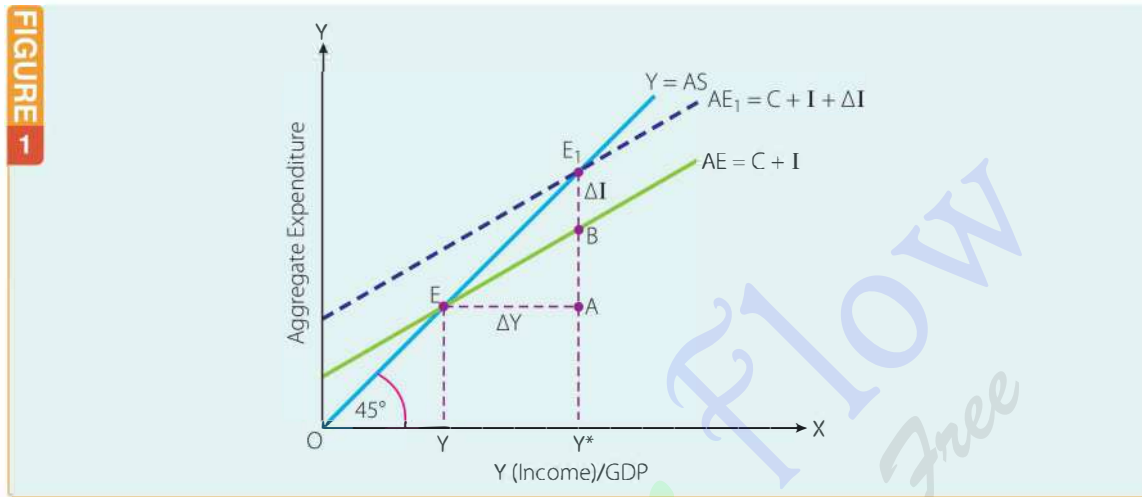
Note: Since change in GDP is studied with respect to change in investment, it is called investment multiplier.

- In the words of **Keynes**, “Investment multiplier tells us that when there is an increment of aggregate investment, income will increase by an amount which is K times the increment of investment.”
- In the words of **Kurihara**, “The multiplier is the ratio of change in income to the change in investment.”

Diagrammatic Illustration

Fig. 1 illustrates the multiplier effect of change in autonomous investment expenditure on GDP. The economy attains equilibrium at point E where $AS = AD$. With increase in autonomous investment

expenditure, AE line shifts to AE_1 . New equilibrium is at point E_1 . GDP increases from OY to OY^* . Change in GDP = $OY^* - OY = YY^* = \Delta Y$. Change in investment is BE_1 . Clearly, $\Delta Y > \Delta I$. Implying that, increase in GDP is the multiple of increase in investment expenditure



WHY SHOULD GDP INCREASE MANY TIMES MORE THAN THE INCREASE IN INVESTMENT?

It should be simple to understand it through an illustration:

Let us recall the multiplier equation:

$$K = \frac{\Delta Y}{\Delta I}$$

Or, $\Delta I \cdot K = \Delta Y$

Suppose producers make an additional investment (ΔI) of ₹ 100 crore in the economy during the year 2018-19. What does it mean? It means additional expenditure by the producers to enhance their production capacity. Where does this expenditure go? Obviously, expenditure by Mr. X becomes the income of Mr. Y. Let us assume ₹ 100 crore passes from X-set of individuals to Y-set of individuals. What will the Y-set of individuals do with additional ₹ 100 crore? Well, we all know that a part of income is saved and a part is spent. What part of the additional income is spent and what part is saved, depends on the marginal propensity to consume or marginal propensity to save of the Y-set of individuals. Suppose, marginal propensity to consume is 0.5, implying marginal propensity to save is also 0.5. (Because, we know that propensity to save + propensity to consume = 1.) Accordingly, half of ₹ 100 crore will be spent on consumption and the other half (₹ 50 crore) will be saved. Expenditure must become somebody's income. Accordingly additional expenditure of ₹ 50 crore becomes income, say of Z-set of people in the economy. Thus, owing to additional investment of ₹ 100 crore, there has been a sequence of increase in income, first by ₹ 100 crore, then by ₹ 50 crore. This sequence continues till $\frac{1}{2}$ of every additional income is used as consumption expenditure and the other half is saved. Accordingly, owing to an additional investment expenditure (of ₹ 100 crore) there is a series of consequential increase in income, viz., $100 + \frac{1}{2}(100) + \frac{1}{2}(50) + \frac{1}{2}(25)$, and so on. As elaborated in the subsequent section, this total

should come to 200. Implying that an additional investment (ΔI) of ₹ 100 crore causes an additional income (ΔY) of ₹ 200 crore on the assumption that propensity to consume is 0.5. It is to be understood with emphasis that the value of multiplier (K which is 2 in this case as $\frac{\Delta Y}{\Delta I} = \frac{200}{100} = 2$) ultimately will depend upon the value of marginal propensity to consume or the marginal propensity to save. So, there is close relationship between the value of K and MPC . The following section substantiates this relationship further.

RELATION BETWEEN MARGINAL PROPENSITY TO CONSUME AND MULTIPLIER

In the words of Kurihara, "The value of multiplier is in fact determined by the marginal propensity to consume." Higher the marginal propensity to consume, greater is the size of multiplier. On the contrary, lower the marginal propensity to consume, smaller is the size of multiplier. People spend a part of this increased income on consumption and they save the rest. How much of their income people would spend on consumption, depends on their marginal propensity to consume (MPC). If marginal propensity to consume is high, they will spend high percentage of their income on consumption. Every expenditure reflects a corresponding increase in income. Accordingly, a high expenditure owing to high MPC would reflect itself as a high increase in income. Briefly, higher the marginal propensity to consume, greater the value of multiplier and hence, greater the increase in income. Implying a direct relation between multiplier and marginal propensity to consume.

Proving the Direct Relationship between MPC and K

We know that,

$$\Delta Y = K \cdot \Delta I \quad (\text{as } K = \frac{\Delta Y}{\Delta I}) \quad \dots(i)$$

We have also known that in equilibrium,

$$S = I, \text{ so that} \\ \Delta S = \Delta I \quad \dots(ii)$$

Recall that, $MPS = \frac{\Delta S}{\Delta Y}$, so that

$$\Delta S = MPS \cdot \Delta Y \quad \dots(iii)$$

Relating equation (ii) and (iii), we get

$$MPS \cdot \Delta Y = \Delta I \quad \dots(iv)$$

Dividing both the sides by MPS , we get

$$\Delta Y = \frac{1}{MPS} \cdot \Delta I \quad \dots(v)$$

Relating equation (i) and (v), we get

$$K \cdot \Delta I = \frac{1}{MPS} \cdot \Delta I$$

$$\text{Or,} \quad K = \frac{1}{MPS} = \frac{1}{1 - MPC}$$

Hence, the conclusion: higher the MPC , higher the value of K ; higher the MPS , lower the value of K .

Cross-Check

Let us take two different values of MPC as 0.2 and 0.4, and find the corresponding values of K.

$$K = \frac{1}{1 - \text{MPC}} = \frac{1}{1 - 0.2} = \frac{1}{0.8} = 1.25 \quad \dots(\text{i})$$

and

$$K = \frac{1}{1 - \text{MPC}} = \frac{1}{1 - 0.4} = \frac{1}{0.6} = 1.67 \quad \dots(\text{ii})$$

So, it is clear that higher the value of MPC, higher the value of K.

Check the value of K, now using two different values of MPS as 0.2 and 0.4

$$K = \frac{1}{\text{MPS}} = \frac{1}{0.2} = 5 \quad \dots(\text{i})$$

$$K = \frac{1}{\text{MPS}} = \frac{1}{0.4} = 2.5 \quad \dots(\text{ii})$$

Evidently, higher the value of MPS, lower the value of K.

In the words of **Hanson**, "The multiplier is large or small according as the marginal propensity to consume is large or small." Following table shows the value of K corresponding to the different values of MPC.

Table 1. Value of K Corresponding to Different Values of MPC

Marginal Propensity to Consume ($\text{MPC} = \frac{\Delta C}{\Delta Y}$)	Value of Multiplier
0 (lowest value)	$K = \frac{1}{1 - \text{MPC}} = \frac{1}{1 - 0} = 1$
$\frac{1}{3}$	$K = \frac{1}{1 - \frac{1}{3}} = \frac{1}{\frac{2}{3}} = 1.5$
$\frac{1}{2}$	$K = \frac{1}{1 - \frac{1}{2}} = \frac{1}{\frac{1}{2}} = 2$
$\frac{3}{4}$	$K = \frac{1}{1 - \frac{3}{4}} = \frac{1}{\frac{1}{4}} = 4$
$\frac{4}{5}$	$K = \frac{1}{1 - \frac{4}{5}} = \frac{1}{\frac{1}{5}} = 5$
$\frac{9}{10}$	$K = \frac{1}{1 - \frac{9}{10}} = \frac{1}{\frac{1}{10}} = 10$
1 (highest value)	$K = \frac{1}{1 - 1} = \frac{1}{0} = \infty$

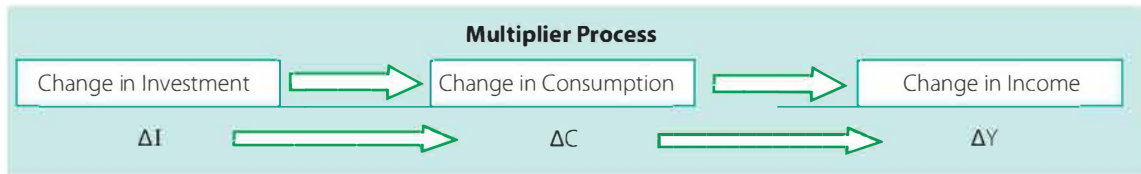
Some arbitrary values

Higher MPC implies higher K

Table 1 shows that when MPC is zero, multiplier is unity (1). Similarly, when MPC is unity (1), multiplier is infinity (∞). Between these two extremes, value of multiplier may be determined anywhere depending on the size of MPC. If MPC is unity, it implies that people spend all their income on consumption. In this situation, any increase in investment would lead to an infinite increase in national income. But in real life, as indicated by Keynes' Psychological Law, consumption does not increase in the same ratio as income; accordingly, the infinite value of multiplier is only a theoretical possibility.

WORKING OF THE MULTIPLIER OR MULTIPLIER PROCESS

Multiplier is a process. It works through the interplay of three macro variables, viz., investment, income and consumption as under:



Change in investment causes change in income. As a result, there is change in consumption. Consumption expenditure of one person is an income of the other. Hence, change in consumption leads to change in income. This process continues till ΔC as a consequence of ΔI reduces to zero. Check Table 2 for details.

Table 2. Multiplier Process

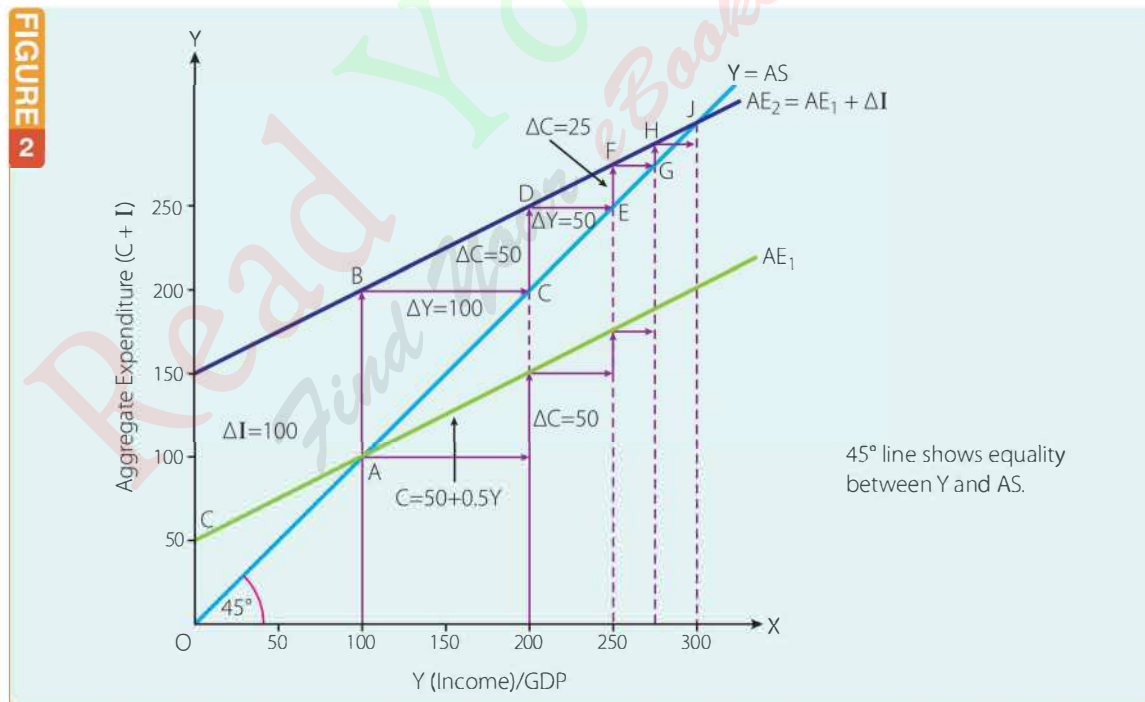
Round	Increase in Investment (ΔI) (₹ crore)	Induced Change in Consumption (ΔC) [assumed MPC = 0.5] $\Delta C = \text{MPC} \times \Delta Y$ (₹ crore)	Change in Income (ΔY) (₹ crore)
1	100	—	100
2	—	$0.5 \times 100 = 50$	50
3	—	$0.5 \times 50 = 25$	25
4	—	$0.5 \times 25 = 12.5$	12.5
5	—	$0.5 \times 12.5 = 6.25$	6.25
6	—	$0.5 \times 6.25 = 3.12$	3.12
7	—	$0.5 \times 3.12 = 1.56$	1.56
8	—	$0.5 \times 1.56 = 0.78$	0.78
9	—	$0.5 \times 0.78 = 0.39$	0.39
10	—	$0.5 \times 0.39 = 0.195$	0.195
	and so on till $\Delta C = 0$		
	Total	100	200

Table 2 is based on the assumption that investment has been increased by ₹ 100 crore and $MPC = 0.5$. It offers following observations on the multiplier process:

- (i) As a result of initial increase in investment by ₹ 100 crore, there is a change in income by ₹ 100 crore. This is assumed to occur in 1st round of change.
- (ii) On the assumption that $MPC = 0.5$, consumption in the 2nd round increases by $0.5 (100) = ₹ 50$ crore. Accordingly, income rises by ₹ 50 crore in the 2nd round.
- (iii) In the 3rd round of change, consumption increases by $0.5 (50) = ₹ 25$ crore. Accordingly income rises by ₹ 25 crore in the 3rd round.
- (iv) This process of increase in consumption as $\frac{1}{2}$ of increase in income and additional consumption expenditure showing as additional income continues till increase in consumption reduces to zero, occurring nearly in the 10th round.
- (v) Adding up the total change in income, we get ₹ 200 crore.
- (vi) ΔY being 200 in response to ΔI of 100, the multiplier value = 2. $\left[K = \frac{\Delta Y}{\Delta I} = \frac{200}{100} = 2 \right]$

Diagrammatic Illustration of Multiplier Process

Multiplier process is explained diagrammatically through Fig. 2. This diagram is drawn on the assumption that $MPC = \frac{1}{2}$.

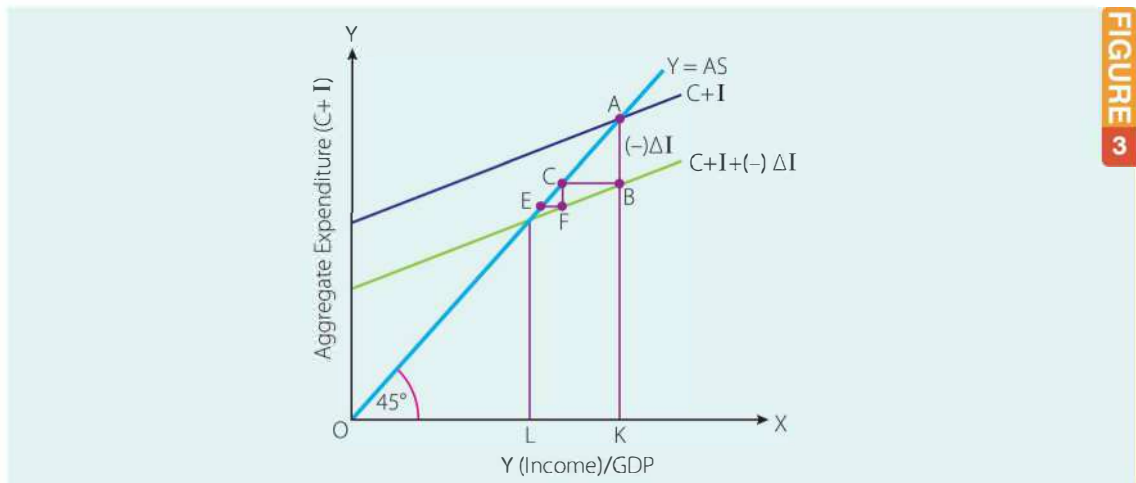


Income is shown on X-axis and expenditure (C + I) on Y-axis. AE is aggregate expenditure curve: AE_1 and AE_2 show lower and higher levels of AE, respectively. Initially the economy is in equilibrium at an income level of ₹ 100 crore. Point 'A' is an equilibrium point, because at this point $AS = AD$. Now, ΔI of ₹ 100 crore is planned. As a result, aggregate expenditure shifts from AE_1 to AE_2 . Because of increase in investment by ₹ 100 crore (= AB), there will be an increase in income by ₹ 100 crore (= BC) in the 1st round. In the 2nd round, consumers will spend ₹ 50 crore (= CD) on consumption resulting in an increase in income by ₹ 50 crore (= DE). In the third round, the consumers will spend ₹ 25 crore (= EF) on consumption. As a result, income will increase by ₹ 25 crore (= FG). In the 4th round, the consumers will spend ₹ 12.5 crore (= HG) on consumption. This will increase income by ₹ 12.5 crore. This process will continue till additional consumption expenditure reduces to zero. This occurs at point J when the level of income reaches ₹ 300 crore. Thus, we find that an investment of ₹ 100 crore ultimately leads to an increase in income by ₹ 200 crore (= 300 - 100), on the assumption that $MPC = 0.5$. Accordingly, income increases by factor of 2 (of the increase in investment) and multiplier happens to be 2. $\left[K = \frac{\Delta Y}{\Delta I} = \frac{300 - 100}{100} = \frac{200}{100} = 2 \right]$

REVERSE OPERATION OF MULTIPLIER

Multiplier is a double-edged sword. If an injection of investment (ΔI) causes multiplier-times (K times) increase in income, withdrawal of investment or disinvestment ($-\Delta I$) will cause K times decrease in income as well. So if, ΔI of ₹ 100 crore causes ΔY of ₹ 200 crore on the assumption that $MPC = 0.5$ (and therefore, $K = 2$), then $-\Delta I$ of ₹ 100 crore should cause $-\Delta Y$ of ₹ 200 crore on the same assumption that $MPC = 0.5$ (and therefore, $K = 2$).

Fig. 3 illustrates the reverse operation of multiplier.



It is assumed that economy is in a state of equilibrium at point A when $AS = AD$. Equilibrium level of income = OK. Investment is reduced by AB (so that $\Delta I = -AB$). Consequently, income reduces by CB in the 1st round ($AB = CB$); it further reduces by EF in the 2nd round, and finally (in all the rounds together) reduces by KL which is surely greater than the initial reduction in investment ($\Delta I = -AB$; $\Delta Y = -KL$).

APPLICATION OF THE MULTIPLIER PRINCIPLE IN THE INDIAN ECONOMY

Should Growth not be a Quick Process in the Indian Economy where MPC is very high?

This question must be bugging the reader's mind at this stage. Why should India continue to be less developed for so long when investment generates a multiple rise in income? And, when MPC in India is fairly high (because poor people spend the bulk of their income on consumption). The following description should bring out the fact why multiplier process is grossly truncated (much less than fully operational) in the Indian economy. Accordingly, the principle of multiplier loses much of its validity when studied in the Indian context.

Working of the multiplier process is based on the fundamental assumption that there exists excess capacity in the economy. So that, when investment rises and consequently, income rises and additional income is converted into additional consumption (implying additional demand), the producers respond by planning higher level of output, utilising the existing production capacity. But in India, the basic issue is not of utilisation of the existing production capacity, but of the lack of capacity itself.

Due to the presence of excess capacity, whenever consumption expenditure rises (implying increase in demand) there is a corresponding increase in production (implying increase in income). Excess capacity occurs due to lack of demand, which is a typical feature of developed economies. Accordingly, when demand rises, excess capacity is utilised, leading to a multiple rise in production and GDP (income) till the excess capacity is exhausted. The problem in India is of generation of capacity. It is the problem of capital formation. We do not have abundant capital stock to increase the level of GDP, even when we have abundant labour force. Our labour force remains unemployed because of the lack of capital (production capacity). Accordingly, rise of demand consequent upon rise in expenditure is not expected to cause a rise in output. Instead, it may lead to higher pressure of demand on the existing output. Leading to inflationary spiral in the country.

Does it mean that the multiplier process does not work at all in the Indian economy? Does it mean that increase in expenditure (AD) is dangerous as it would always lead to inflationary spiral? Answer is 'NO'. While full scale application of the multiplier principle is ruled out in the Indian economy, its partial application is not denied. Indian economy exhibits a typical characteristic: while there is always a lingering threat of overall inflation, the industrial sector often suffers from the deficiency of demand. This sector is often confronted with deflation. The reason is this: having spent the bulk of their income on food and related essential items, the vast majority of the population in India are left with meager (small) income for the purchase of industrial goods (related to comforts and luxury of life). Accordingly, demand for these goods remains subdued (low) even when there is overall inflationary spiral in the economy. Such a situation is described by the economists as of 'stagflation'. Implying stagnation of the industrial sector in the midst of over inflationary spiral in the country. The situation of industrial stagnation quite often implies the existence of excess capacity in the industrial sector. When aggregate demand rises, it is this sector (loaded with excess capacity) which is expected to respond with higher level of output. And in this process, autonomous investment is expected to generate multiplier effect on the rise in GDP (income).

Briefly, multiplier effect in the India (like other less developed countries) works only partially and is confined only to that production activity where deficiency of demand is a prominent feature.

1. Define multiplier.

Ans. Multiplier is the ratio of change in income to the change in investment.

2. What is the relationship between MPC and multiplier?

Ans. The value of multiplier is directly related to the value of MPC. Higher MPC leads to higher value of the multiplier.

3. How does the multiplier process work?

Ans. Multiplier process works through the interplay of three macro variables: investment, income and consumption.

Investment is an expenditure and additional expenditure becomes additional income in the economy. Since additional income is split as additional consumption and additional saving ($\Delta Y = \Delta C + \Delta S$), every time the consumption rises, there is a rise in expenditure, implying a rise in income. Higher the MPC, greater should be the component of additional consumption out of additional income. Accordingly, higher should be the level of additional income. According to this process, if additional investment (ΔI) = 100, and MPC = 0.5 (or MPS = 0.5), then the total additional income

generated in the economy would be = $100 \times \frac{1}{0.5 \text{ (MPS)}} = 200$.

Or, $100 \times \frac{1}{1 - \text{MPC}} = 100 \times \frac{1}{1 - 0.5} = 100 \times \frac{1}{0.5} = 200$.

4. Multiplier process is active only when there is excess capacity in the economy. Do you agree?

Ans. It is true that the multiplier process is active only when there is excess capacity in the economy. When expenditure rises, it must lead to utilisation of the excess capacity, so that output rises, implying a rise in income. In case there is no excess capacity, additional expenditure would only lead to additional demand without additional supply. It would be a situation of inflationary spiral without any real rise in output.

5. Multiplier process is only partially active in less developed economies like India. Do you agree?

Ans. It is true that the multiplier process is only partially active in less developed countries like India. It is because in these countries, the problem is not of utilisation of excess capacity. Instead it is the problem of creation of production capacity.

6. Multiplier as a tool of economic analysis is more relevant in the context of deflation rather than inflation. Explain how.

Ans. It is true that multiplier as a tool of economic analysis is more relevant in the context of deflation rather than inflation. Because, existence of excess capacity (unutilised production capacity) is a necessary prerequisite of the operational success of the principle of multiplier. And, this condition is fulfilled only when the economy is battling deflation, not inflation.

7. Why multiplier principle is of limited validity in the Indian economy even when propensity to consume is high?

Ans. Multiplier principle is of limited validity in the Indian economy even when MPC is high. This is because of the general lack of excess capacity in the economy. The problem in the Indian economy is not as much of utilisation of the excess capacity as of the generation of more capacity. We know, the multiplier process becomes active only when there is unutilised capacity in the economy.



COST AND BENEFIT OF GDP GROWTH

INTRODUCTION

'GDP growth' has emerged as a household name. It is taken as the synonym for national prosperity and better quality of life. The politicians (and policy makers) all over the world refer to GDP growth as an index of 'good governance' of the economy. A rise in GDP makes them self-acclaimed good governors of the economy, and they would seek yet another term in the office as a matter of right. A common man is led to believe that his fortune is linked to GDP growth: improvement in GDP would certainly improve his fortune. The benefits of GDP growth are so forcefully presented that we remain ignorant about its costs. One is led to believe that GDP growth is a universal remedy for all economic problems (like of poverty and unemployment) involving zero costs (in terms of negative consequences). This is a false propaganda, just to garner votes. Have we ever thought of environmental pollution as a direct consequence of GDP growth? Have we ever thought of social disintegration as a direct consequence of GDP growth? Have we ever thought of depletion of our natural resources as a direct consequence of GDP growth? As students of economics, we must be aware of all such costs, besides the benefits of GDP growth. It is only with a deeper recognition of both the costs and benefits (of GDP growth) that we should accept GDP growth as a central element of the strategy of development.

BENEFITS

Let us first attempt a brief description of the benefits of GDP growth. The principal benefits are as under:

- (1) **Higher Level of Consumption and Welfare:** GDP refers to the production of final goods and services in the economy during an accounting year. A rise in GDP would obviously lead to a rise in consumption basket of the residents of the country. On an average, each resident should benefit (in terms of higher level of consumption), provided population growth does not outstrip GDP growth. Since, level of welfare is directly related to the level of consumption, a rise in consumption would lead to a rise in the level of welfare of the residents of a country.
- (2) **Higher Level of Employment:** GDP growth is often linked with greater opportunities of employment. In fact, there is one-to-one relationship between GDP growth and employment, provided technology remains constant. However, one should not lose sight of the fact that presently technology has emerged to be a more potent factor of growth than the other determinants. In fact, the developing countries are grappling with the problem of 'jobless growth'. There is GDP growth without any perceptible rise in employment, because more and more efficient technology is being used across all activities of value-addition (production). Thus, while focusing on GDP growth, the overpopulated developing economies should not altogether ignore the significance of labour-intensive technology.

- (3) **Higher Level of Potential Output:** GDP growth leads to a shift in the level of potential output. PPC (Production Possibility Curve) shifts to the right when growth is achieved through efficient technology and/or greater employment of resources. A shift in PPC is certainly a sign of national prosperity. It tends to meet aspirations of the people in terms of better job opportunities and higher standard of living.
- (4) **Higher Level of Self-sufficiency:** GDP refers to domestic production, or production within the domestic territory of a country. A rise in GDP would obviously lead to a rise in self-sufficiency, or a cut in imports. It reduces dependence on rest of the world. Accordingly, terms of trade (the export price in relation to import price) tends to shift in our favour. This increases the inflow of foreign exchange. A rise in foreign exchange reserves (on account of rise in exports and fall in imports) enhances our credit rating in the international market.
- (5) **Trickle-down Effect:** Historical experience of developed nations shows that GDP growth generates 'trickle-down' effect. Implying that the benefits of GDP growth gradually start flowing to poorer sections of the society. Particularly, when the level of production activity rises, demand for labour tends to rise. This causes a rise in the rate of employment. Eventually, the process of growth turns 'inclusive' in nature. When the fruits of growth are widely distributed, poverty is alleviated and human development is enhanced. Enhancement of human development is reflected in terms of higher standard of living of the residents, higher level of literacy and education, as well as higher expectancy of life (due to better access to medical facilities).
- (6) **Rise in Government Revenue:** Rise in GDP enhances government revenue in terms of higher tax receipts. This enables the government to increase expenditure on welfare of the residents. The government can spend more money on healthcare and education. More and more poverty alleviation programmes can be sponsored. Accordingly, the gulf between the rich and the poor can be reduced. Greater the equality in the distribution of income and wealth, higher the degree of social harmony.
- (7) **Rise in Social Awareness:** When consumption level rises (owing to rising GDP), people tend to shift their focus from self-interest to social interest. Social awareness tends to rise. More and more people are driven towards philanthropy. It enhances spirit of togetherness and social dynamism. The process of economic and social prosperity gets a long period momentum.

Briefly, GDP growth, provided it covers larger sections of the society, leads to better quality of life of the residents of a country. The standard of living rises, the level of literacy enhances and people enjoy robust health. Allocation of resources becomes efficient, and higher benchmarks of optimisation are established.

COSTS

GDP growth is not free of costs, though these are not as commonly known as the benefits. The principal costs of GDP growth are as under:

- (1) **Concentration of Economic Power:** It is a well known fact that GDP growth has led to the concentration of economic power. GDP growth has been triggered through globalisation of the economies which has led to the growth of multinational corporations. Production activity (in most economies) is being managed and controlled by these global enterprises. Accordingly, wealth is getting concentrated, rather than being equitably distributed. 'Trickle-down' effect of growth has remained only a theoretical prescription. While GDP growth is accelerating, poverty remains unabated. In India, for example, the richest 1 per cent of Indians own 58.4 per cent of the country's wealth. The richest 10 per cent of the Indians own 80.7 per cent of wealth. India boasts of being one of the fastest growing economies of the world. But, it is also true that India is the

second most unequal economy in the world. The worst still is that the inequality is trending up year after year. Implying that, the rich are getting richer and the poor are getting poorer.

Thus, **unabated hunger and deprivation of the millions in the country is to be reckoned as the cost of high GDP growth in the country.**

- (2) **Environmental Pollution:** **Environmental pollution** is a great risk factor associated with GDP growth. Indeed, it is the **core element of the cost of GDP growth.** Air pollution (because of industrial smoke or stubble-burning), water pollution (because of industrial waste being driven into the rivers), noise pollution (because of exponential growth of transportation) are linked with GDP growth. Faster the GDP growth, faster is environmental pollution. According to one report (by Centre for Science and Environment TOI, Nov. 27, 2017), air pollution causes nearly 30 per cent of premature deaths in the country.

Are we really aware of such costs of GDP growth? Add to this the environmental cost in terms of acid rain and the depletion of ozone layer.

- (3) **Depletion of Resources:** Faster growth would lead to faster depletion of resources. Resources are broadly classified as: (i) renewable (like water and forests), and (ii) non-renewable (like fossil fuels). GDP growth might lead to the depletion of both the types of resources. In case of renewable resources, depletion would occur if their consumption is faster than these can be replenished. And, in case of non-renewable, depletion is inevitable as these cannot be replenished. Are we conscious of the fact that in India, water-table is constantly lowering and forest cover is constantly shrinking. These deficiencies are an important trigger factor of natural calamities which indirectly contribute to the cost of GDP growth. Likewise, if non-renewable resources are excessively exploited in a bid to accelerate the process of growth, eventually a point would come when such a momentum of growth becomes unsustainable. So that, faster growth now would mean slower growth in the future. Implying that the **present generation is becoming prosperous at the cost of future generations.**

- (4) **Social Discontent:** Excessive pursuit of materialism through GDP growth may lead to the emergence of less caring society. It is in such a society that social problems (such as suicides and divorce) tend to trend up. People may be materially well-off, but devoid of the happiness of life, once they are gripped by the greed to acquire more. **A greed ridden society would never be able to achieve higher level of satisfaction, no matter how big is the GDP size.**

In developing economies like India, social discontent may also arise from the fact that GDP growth must lead to a cut in current consumption. If the government is on a mission to scale up GDP growth, it must be able to garner funds for extra investment. Ultimately, these funds are to come either through voluntary savings or through forced savings (taxation). Either way the current consumption must suffer. The social discontent becomes evident (as in India presently) when the government resorts to 'fiscal discipline' by way of higher taxation and lower subsidies. It is an indispensable cost of GDP growth.

Summing up, we can say that GDP growth should not be considered as panacea—a standard remedy for all ills in the economy. It generates its own ills. It involves costs which cannot be overlooked. The costs are quite harsh, particularly when the gulf between the 'haves' and 'have-nots' is widened, when environmental pollution leads to sickness and disease, and when resource-depletion becomes a challenge for future generations. Accordingly, it is suggested that the pursuit of GDP growth should not become a fad for any government. GDP growth sans social justice makes no sense. GDP growth sans sustainability over a longer period of time is meaningless. And, GDP growth sans environmental protection is just ridiculous. Not that the costs of GDP growth can be altogether eliminated. But, we can certainly strike a balance between the costs and benefits of GDP growth. Costs must be managed and kept within the limits, even when it leads to a cut in the rate of growth.

1. What is GDP growth?

Ans. It refers to a rise in real GDP, over a period of time.

2. How is GDP defined?

Ans. GDP is defined as the market value (measured at constant prices) of the final goods and services produced in the economy during an accounting year.

3. How does GDP growth lead to a rise in standard of living?

Ans. GDP growth leads to a rise in standard of living of the residents of a country as it enhances per capita availability of goods and services.

4. What is 'trickle-down effect' of GDP growth?

Ans. It refers to the percolation of the benefits of GDP growth across all sections of the society. So that, the growth process becomes 'inclusive' in nature.

5. Briefly state the benefits of GDP growth.

Ans. Benefits of GDP growth are as these:

- (i) It leads to higher level of consumption and welfare.
- (ii) It leads to higher level of employment, implying higher rate of participation. Higher rate of participation improves the distribution of income. It becomes more equitable.
- (iii) GDP growth causes a rise in potential output. GDP growth leads to higher level of potential output, implying a forward shift in PPC of a nation. This is because, GDP growth is often accompanied with 'expansion of resources' and 'innovative technology'.
- (iv) GDP growth causes higher level of self-sufficiency, as domestic production rises and imports are reduced.
- (v) GDP growth leads to trickle-down effect. Implies distribution of the benefits of growth across all sections of the society.
- (vi) GDP growth implies a rise in government revenue. It enhances capacity of the government to spend on public welfare programmes.
- (vii) GDP growth enhances social awareness, as higher levels of income induce people to be more philanthropic.

6. State the principal costs of GDP growth.

Ans. The principal costs of GDP growth are as these:

- (i) It promotes inequality of income. The gulf between the rich and the poor tends to widen.
- (ii) It leads to environmental pollution, causing sickness, disease and pre-mature deaths.
- (iii) GDP growth causes depletion of resources. Depletion occurs both in case of renewable and non-renewable resources. It reduces production capacity of future generation.
- (iv) GDP growth leads to problems of plenty. It heightens extravagance, greed and selfishness. Social discontent rises, leading to social disintegration.

7. Should the pursuit for GDP growth be given up in view of its high economic and social costs?

Ans. Not at all. The pursuit for GDP growth only needs to be moderated. We must strike a balance between the costs and benefits of GDP growth. Implies that, we should not pursue GDP growth unmindful of economic and social inequality, unmindful of environmental pollution and unmindful of the depletion of resources (meant for the future generations). **We should make GDP growth a sustainable process and a process that enhances the rate of participation and reduces the gulf between the rich and the poor.**



PROBLEM OF UNEMPLOYMENT IN INDIA

INTRODUCTION

Problem of unemployment in India is very grave and grim. If unchecked, it is likely to become still more grim in the future. It points to poverty of an individual, and loss of human resource of a nation.

Nature of unemployment in India is multi-dimensional. Open unemployment, underemployment, disguised unemployment are some of the important types of unemployment. Explosive rise in population, defective education system, slow speed of industrialisation and use of labour-saving technology are some of the important causes of unemployment. Jobless growth [a situation when GDP grows sans (without) any growth in employment] is emerging to be a serious challenge in the Indian economy. Social unrest (owing to lack of employment opportunities) may become a serious threat to economic growth if employables are not given employment.

FOCUS OF STUDY

The present study focuses on the following parameters of the problem of unemployment in India:

- (1) Concept of unemployment and related terms.
- (2) Extent of unemployment.
- (3) Unemployment across rural and urban areas and across male and female population.
- (4) Unemployment across different states in India.
- (5) Contribution of primary, secondary and tertiary sectors to total employment.
- (6) Challenge of informalisation of workforce.
- (7) Challenge of jobless growth.
- (8) Reasons for slow growth of employment opportunities in India.
- (9) Remedial measures.

(1) Concept of Unemployment and Related Terms

Unemployment is a situation in which people are able to work and willing to work at the existing rate of wage, but are not getting work. Thus, while calculating unemployment only those persons are taken into account who are not getting work, even when they are (i) able to work, and (ii) willing to work at existing wage rate. Those who are not capable of doing any work (old, infirm, sick people, children, students, etc.) are not included among unemployed. Likewise, those who do not want to work

at all are also not included among the unemployed. The above concept of unemployment refers to **Labour Force Approach**. Under this concept, labourer is taken as an individual unit and employment is measured in terms of **Standard Person Year (SPY)**. One Standard Person Year means a person working **8 hours per day for 273 days in a year**. It means if a person gets work for minimum eight hours per day and for minimum 273 days in a year, he is not unemployed.

Open unemployment, underemployment and disguised unemployment are important terms related to unemployment.

Open unemployment includes all those persons who do not get employment at all during the year. These persons are willing to work, have necessary calibre, skill, capability, but they are not able to find work. Underemployment refers to: (i) the situation when people get employment only for a few months of the year, and (ii) the situation when people find jobs below their calibre and qualification. Disguised unemployment is a state in which more people are engaged in a job than needed. If some of them are withdrawn from the job, total output will remain constant or may even rise.

(2) Extent of Unemployment

Table 1 shows the extent of unemployment in India.

Table 1. Number of Unemployed Persons Registered with Employment Exchanges in India

(in million)

Year	Number of Unemployed Persons on the Live Register
1990-91	36.30
2000-01	42.00
2005-06	41.47
2010-11	40.17
2011-12	44.49
2012-13	46.80
2013-14	48.26
2015-16	44.85

[Source: Directorate General of Employment and Training. Ministry of Labour & Employment, Government of India.]

Observations

Table 1 offers the following observations:

- (i) The number of unemployed persons registered with various employment exchanges is not only enormous but also has tended to rise over time. In 1990-91, 36.30 million persons were registered as job seekers. This number increased to 44.85 million in 2015-16. This points to a grim as well as alarming situation.
- (ii) Rising unemployment projects rising poverty. India has the highest number of 'absolutely poor' (people below poverty line) in the world. Such a state eclipses GDP growth, no matter how rapid it is.

(3) Unemployment across Rural and Urban Areas

Table 2 shows the rate of unemployment across rural and urban population in India. Rate of unemployment is defined as ratio of unemployed persons to total labour force.

Table 2. Rate of Unemployment Across Rural and Urban Population in India (2017-18)

(in percentage)

Area	Male	Females	Total
Rural Areas	5.8	3.8	5.3
Urban Areas	7.1	10.8	7.8
Total	6.2	5.7	6.1

[Source: Periodic Labour Force Survey Report, 2017-18]

Observations

- (i) Contrary to the popular belief, female unemployment rate is lower in rural areas (3.8) compared to urban areas (10.8). This is explained in terms of these facts:
 - (a) Among most families in urban areas, job work for women is still governed by family decisions rather than the individual's own decision. Implying that even the available opportunities are not actually utilised.
 - (b) Higher employment among women in rural areas is owing to widespread rural poverty. Female workers in rural areas are largely engaged in low paid and less productive jobs just to add to their family income.
- (ii) Overall rate of unemployment in India is higher among female population than the male population. This is because (a) education among women still suffers from a social taboo, and (b) mobility of female workers for jobs is still very restricted.

(4) Unemployment across Different States

Table 3 reveals the rate of unemployment across different states in India.

Table 3. Unemployment Rate (per 1,000) across Different States in India (year 2011-12)

State	Rural			Urban			Rural + Urban		
	Male	Female	Male + Female	Male	Female	Male + Female	Male	Female	Male + Female
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Andhra Pradesh	49	58	52	54	97	64	51	64	56
Arunachal Pradesh	19	22	20	37	86	47	23	28	24
Asam	49	89	54	58	73	60	50	87	55
Bihar	42	132	48	59	271	74	44	145	50
Chhattisgarh	59	30	48	93	81	89	66	38	56
Goa	73	8	57	31	101	47	53	50	52
Gujarat	25	39	29	14	24	16	21	35	24

Haryana	42	67	46	41	63	44	42	66	45
Himachal Pradesh	27	15	22	23	77	36	27	19	23
Jammu & Kashmir	50	118	61	53	242	84	50	147	67
Jharkhand	26	68	33	57	103	62	33	72	39
Karnataka	36	31	34	37	56	41	36	37	36
Kerala	122	277	169	87	213	123	112	260	156
Madhya Pradesh	36	21	33	45	49	46	38	26	36
Maharashtra	42	42	42	30	66	37	37	50	40
Manipur	31	44	34	58	119	74	38	63	44
Meghalaya	9	6	8	27	46	33	13	12	12
Mizoram	15	27	20	42	69	52	27	45	33
Nagaland	199	302	231	205	451	264	201	341	241
Odisha	88	85	87	64	28	58	84	77	83
Punjab	56	33	52	43	48	43	51	38	49
Rajasthan	45	12	35	54	42	52	47	16	39
Sikkim	29	10	21	31	2	23	29	9	21
Tamil Nadu	106	121	111	63	85	68	86	109	93
Tripura	123	326	170	142	586	276	126	381	188
Uttarakhand	54	43	51	43	243	71	51	71	56
Uttar Pradesh	56	27	51	62	55	61	58	32	54
West Bengal	81	93	83	64	88	68	76	91	79
All India	55	62	57	49	80	55	53	66	56

[Source: Key Indicators of Employment and Unemployment in India, National Sample Survey Organisation Report, June 2013]

Observations

- (i) Unemployment rate is very high in the states of Nagaland, Tripura, Kerala, Tamil Nadu and Odisha. Unemployment rate is low in Meghalaya, Sikkim, Himachal Pradesh, Gujarat and Mizoram.
- (ii) High variation in the rate of unemployment across different states reveals that the idea of balanced regional growth is still a far cry in India.

(5) Contribution of Primary, Secondary and Tertiary (Service) Sectors to Total Employment

Primary sector includes agriculture and allied activities. Secondary sector includes industry, construction, and related activities. Service sector includes trade, transport, communication, banking, insurance, entertainment, media research, tour and travels, hotels, information technology, etc. **Table 4** reveals the contribution of these sectors to total employment.

Table 4. Contribution of Primary, Secondary and Tertiary Sectors to Total Employment

(in percentage)

Year	Primary Sector	Secondary Sector	Tertiary Sector
1950-51	73	10	17
1970-71	73	11	16
1990-91	67	12	21
2001-02	61	17	22
2006-07	50.2	20.4	29.4
2011-12	48.9	24.3	26.8
2015-16	46.2	21.8	32.0
2017-18	43.86	24.69	31.45

[Source: Census Report, NSSO Survey]

Observations

- (i) Primary sector dominates in providing opportunities of employment. In the year 2017-18, 43.86 per cent of employment was provided by primary sector compared to 24.69 per cent and 31.45 per cent respectively by the secondary and tertiary sectors. Dominance of primary sector suggests that the Indian economy continues to be largely a rural economy.
- (ii) Though the dominance of primary sector remains unchallenged right since 1950-51, it has tended to taper off (decline) over time. From 73 per cent share in employment generation in 1950-51, the primary sector had only 43.86 per cent share in 2017-18. The decline has been constant over the years. This points to a gradual transformation of the Indian economy. There has been a gradual growth of the industrial and tertiary sectors, which is a sign of a developing economy.
- (iii) In terms of employment generation, tertiary sector has grown a little faster than the secondary sector. This points to the laggard growth of the industrial sector. It is because of this that the problem of unemployment in India still continues to be diabolic (huge) in size.

(6) Challenge of Informalisation of Workforce

Employment may broadly be classified as: (i) formal sector employment, and (ii) informal sector employment. **Formal sector** refers to organised sector of the economy. It includes all government departments, public enterprises and private establishments which hire 10 or more workers.

Informal sector refers to unorganised sector of the economy. It includes all such private enterprises which hire less than 10 workers, besides farming and self-employment ventures. Those working in the organised sector are called 'formal workers', and those working in the unorganised sector are called 'informal workers'.

From the viewpoint of employment status, the underlying difference between formal and informal sectors (or between organised and unorganised sectors) is that workers in the formal sector are entitled to social security benefits (such as provident fund, gratuity, pension, etc.) while workers in the informal sector are not. While economic interest of the workers in formal sector is protected through various **labour laws**, there are hardly any protective laws for the informal sector (other than Minimum Wages

Act). To protect their economic interest, workers in the formal sector can form **trade unions**; no such unions exist in the informal sector. Informal sector workers are highly vulnerable to uncertainties of the market. They are hired when the market sentiments are good and are fired when there is economic slowdown.

Informalisation of workforce refers to a situation where percentage of workforce in the formal sector tends to decline and that in the informal sector tends to rise. In accordance with socialistic pattern of society (as a central goal of Development Planning launched in 1951), 'formal sector employment' should have risen and 'informal sector employment' should have declined over time. Alas! Just the opposite has happened in the Indian economy. And it has happened not accidentally, but as a consequence of the strategy of development since 1991. A series of economic reforms were launched in 1991, with 'liberalisation, privatisation and globalisation' as their key elements. Consequently, there is a significant transformation from 'a controlled economy' to 'market economy'. And, in this process of transformation there has been a significant drift towards informalisation of workers. **Market economy and informalisation of workers, perhaps, are strongly correlated to each other.** Presently, formal sector employment comes to merely 10 per cent of the total; 90 per cent of the workforce continues to be informal. This points to growing vulnerability of the workforce to uncertainties of the market economy.

A staggering number of 40 crore workers working in informal or unorganised sector of the economy points to growing vulnerability of the workforce to uncertainties of the market.

Little wonder that informalisation leads to poverty, and therefore, to fragmentation of social harmony. Closure of textile mills in Ahmedabad (offering employment to nearly 1,50,000 workers) and the consequent riots are a testimony to this assertion. According to one study, when mill workers were rendered unemployed, their families took to casual jobs and many of them even took to suicides as the ultimate solution to their hardships.

(7) Challenge of Jobless Growth

Jobless growth is an emerging challenge of the Indian economy. Since the adoption of NEP (New Economic Policy) in 1991, GDP growth in India has shown a substantial rise. But it has failed to be accompanied with proportionate opportunities of employment. Consequently, India has seen growth without employment. Our heavy reliance on labour-saving technology is perhaps the principal reason behind this situation. If growth rate is to be maintained, a capital-intensive technology cannot be dispensed with. But if opportunities of employment are to be generated, labour-intensive technology is indispensable. But having integrated our economy with the global economy where competition is the central theme of economic decisions, there seems to be no choice but to stick to the use of labour-saving technology, which is certainly more efficient than the labour-intensive technology. Thus, there seems to be no respite from the challenge of jobless growth at least in the near future.

(8) Reasons for Slow Growth of Employment Opportunities in India

Some of the important reasons for slow growth of employment opportunities are as under:

- (i) **Trend towards Automation:** Increased use of information technology and capital-intensive methods of production have hindered the growth of employment opportunities. Electronic delivery of services like e-banking, online reservation, e-governance, etc., has reduced the demand for workforce.

- (ii) **Lack of Vocational Education:** Education in India is degree-oriented. There is a serious lack of vocational education. More often than not, the degreeholders look for wage employment rather than self-employment.
- (iii) **Poor Start-up Culture:** Entrepreneurial initiative is highly lacking in our country. Even those in business are more like risk averse rather than risk lovers.
Also, India's rank in 'Ease of Doing Business' is very poor (100 in the world). Excessive formalities and complex procedure for setting up new business ventures discourage entrepreneurship. All these factors contribute to slow growth of employment opportunities.
- (iv) **Increasing Participation of Females:** With increase in female literacy and social change in the society, more and more females look for jobs. It has increased the number of job seekers in the economy contributing to unemployment.
- (v) **Slow Progress of Industrialisation:** Growth of industries in India has been slow. Special emphasis has been laid on the development of the industries in the five year plans, yet the prospects of employment generation are not very encouraging. Moreover, in large-scale industries capital-intensive technology is used. It leads to lesser employment generation.
- (vi) **Decreasing Dependency Ratio:** Dependency ratio is the ratio of dependent population to the working population. Dependent population includes population in the age-group of 0 to 14 years and above 60 years; working population includes population in the age-group of 15 to 60 years. In India, dependency ratio is decreasing. This ratio was 0.8 in 1991, 0.73 in 2001 and is expected to be 0.59 in 2011. Lower dependency ratio increases the supply of labour, further aggravating the problem of unemployment.
- (vii) **Rapid Growth of Population:** Continuous rise in population has been a grave problem of India. Rapid growth of population is the main cause of unemployment. Measures taken by government to promote employment could not produce desired results because of increased pressure of population.
- (viii) **Lack of National Employment Policy:** There has been no clearcut employment policy. Our planners thought that unemployment problem will be automatically solved as a 'trickle-down' effect of GDP growth. But it did not happen. The planners did not go in for serious manpower planning. They have failed to strike a balance between industrial technology and opportunities of employment. We have been following the western technology which never matched the need and means of the Indian economy.

(9) Remedial Measures

Some of the remedial measures relating to the problem of unemployment in India are as under:

- (i) Use of automation should be restricted to high technology and critical areas.
- (ii) Vocational education should be promoted in place of degree-oriented education.
- (iii) Entrepreneurship should be promoted by giving tax holidays, liberal loans, consultancy, etc. Procedural formalities for setting up business ventures should be simplified.
- (iv) Make in India programme should be strengthened to increase employment opportunities in manufacturing sector. Multinational companies should be encouraged to set up business ventures in India.

- (v) National Employment Policy should be framed to phase out unemployment in time bound manner.
- (vi) Exports should be promoted. It will increase direct and indirect employment of the persons engaged in production, transportation, export, etc.
- (vii) Growth rate of population should be checked. So that the demand for jobs is contained over a long period of time.
- (viii) Labour-intensive sectors like food processing industry, gems & jewellery, footwear, readymade garments, handlooms & handicrafts, etc., should be encouraged to generate more employment opportunities.
- (ix) Personal care services like baby care, old age care, drivers, security, domestic services, etc., should be organised for linking demand and supply of workers in this regard.

Briefly, while GDP growth should be accelerated, focus should not be lost of the choice of technology. Technology must suit the needs and means of the country. Thrust should be placed on the labour-intensive technology to the extent possible. Also, environment should created where self-employment becomes a preferred choice rather than job seeking.

DATA BASE

This project is based on secondary data. The data is collected from published sources.

Following publications have been used as the principal sources:

- (i) National Sample Survey Report (68th Survey). Key Indicators of Employment and Unemployment in India.
- (ii) Handbook of Statistics on Indian Economy, Reserve Bank of India.
- (iii) Economic Survey Reports.
- (iv) Census Reports.
- (v) Five Year Plan Documents.

VIVA VOCE (EXAMINATION THROUGH SPOKEN COMMUNICATION)

1. What is unemployment?

Ans. Unemployment refers to a situation when people are not getting work even when they are able to work and willing to work at the existing wage rate.

2. How is unemployment different from underemployment?

Ans. Unemployment occurs when people are not getting work at all even when they are able to work and willing to work at the existing wage rate. Under-employment occurs when people get work only for a few weeks during a month or a few months during a year. It also occurs when people fail to get work at par with their skills or qualifications.

3. What is informalisation of workforce?

Ans. Informalisation of workforce is a process indicating a decline in percentage of workforce in the formal sector (where rights of the workers are protected according to labour laws) and a rise in

percentage of workforce in the informal sector (where rights of the workers are not protected according to labour laws).

4. Elucidate the concept of 'jobless growth'.

Ans. Jobless growth is a serious emerging challenge of the Indian economy. It is a situation when GDP is growing without a corresponding growth in the opportunities of employment. Rise in GDP is driven exclusively by the innovative techniques of production. This makes the distribution of income highly skewed (unequal) in favour of richer sections of the society. The rich tend to become richer, while the poor continue to suffer poverty and deprivation.

5. The fact that more and more women are seeking job has only compounded the problem of unemployment. Do you agree with this statement?

Ans. In the context of the Indian economy, it is true that a growing number of women have started seeking job. Consequently, unemployment is turning to be a serious situation. This situation needs to be viewed in the light of the fact that wage-employment for women was considered as a social taboo. Campaign for 'women empowerment' has led to a spike in supply of women workers in all areas of production activity. Consequently, a situation has emerged where job-seekers are far more in number than the available opportunities of employment.

6. Narrate the reasons for unemployment in India.

Ans. The principal reasons of unemployment in India are as these:

- (i) Use of labour-saving technology, or trend towards automation.
- (ii) Lack of vocational education.
- (iii) Lack of entrepreneurial initiative.
- (iv) Campaign for 'women empowerment' which has led to a spike in supply of women workers in all areas of production activity.
- (v) Slow pace of industrial growth implying slow generation of the opportunities of employment.

7. Suggest the possible remedies to the problem of unemployment in India.

Ans. The possible remedies to the problem of unemployment in India are as these:

- (i) Use of automation should be rationalised.
- (ii) Vocational education should be promoted.
- (iii) Industrialisation, particularly the one which is labour-intensive, should be encouraged.
- (iv) Growth rate of population should be checked, so that the supply of labour does not swell.
- (v) National employment policy should be framed to phase out unemployment in time bound manner.

8. What is wrong in the education system of India that leads to unemployment?

Ans. There are two serious flaws in the education system of India, because of which unemployment tends to rise:

- (i) Education system in India is degree-oriented. It lacks the element of skill formation. Accordingly, most degreeholders in India are not 'employables'.
- (ii) Technical training institutes fail to impart entrepreneurial initiative to the trainees, even when they turn out to be good skilled workers. Accordingly, skilled workers remain job-seekers rather than being 'self-employed'.





CBSE SAMPLE QUESTION PAPER, 2020 (SOLVED)

Time Allowed : 1½ Hours

Maximum Marks : 40

Instructions:

- (i) All the questions are compulsory. Marks for questions are indicated against each question.
- (ii) Question number 1-10 are very short-answer questions carrying 1 mark each. They are required to be answered in one word or one sentence each.
- (iii) Question number 11-12 are short-answer questions carrying 3 marks each. Answers to them should not normally exceed 60-80 words each.
- (iv) Question number 13-15 are also short-answer questions carrying 4 marks each. Answers to them should not normally exceed 80-100 words each.
- (v) Question number 16-17 are long answer questions carrying 6 marks each. Answers to them should not normally exceed 100-150 words each.
- (vi) Answers should be brief and to the point and the above word limit be adhered to as far as possible.

SECTION-A (INTRODUCTORY MACROECONOMICS)

1. Value of Money Multiplier (increases/decreases/remains unchanged)
with an increase in Cash Reserve Ratio. 1

(Fill up the blank with correct alternative)

Ans. decreases

2. Define an intermediate good.

Ans. An intermediate good is that good which is used as raw material or is purchased by the firms for resale.

3. Average Propensity to Consume can never be . 1
(Choose the correct alternative)

- | | |
|-------------------|-------------------|
| (a) positive | (b) zero |
| (c) more than one | (d) less than one |

Ans. (b) zero

4. Name any two quantitative tools to control credit creation in an economy.

Ans. (i) Repo rate, and (ii) Cash Reserve Ratio (CRR).

Or

What are demand deposits?

Ans. Demand deposits of commercial banks are those deposits which can be withdrawn from the bank on demand or by writing a cheque any time.

5. The monetary policy generally targets to ensure

(Choose the correct alternative)

- (a) price stability in the economy
- (b) employment generation in the country
- (c) stable foreign relations
- (d) greater tax collections for the government

Ans. (a) price stability in the economy

6. In an economy, break-even point and equilibrium point may lie at the same level of income, if ex-ante investments are

(Fill up the blank with correct answer)

Ans. zero

7. State whether the given statement is true or false:

'Managed Floating Exchange Rate is decided by market forces but remains within a specific range as decided by central bank'.

Ans. True

8. The formula to calculate Primary deficit is

(Fill up the blank with correct alternative)

Ans. Fiscal Deficit – Interest Payments

9. From the set of statements given in Column I and Column II, choose the correct pair of statements:

Column I	Column II
(a) Export of software to France	(i) Debit side of current account
(b) Import of Machinery from China	(ii) Capital Account of Balance of Payments
(c) Remittances to relative staying abroad	(iii) Debit side of Current Account of Balance of Payments
(d) Investment by Apple phones firm in India	(iv) Credit side of Current Account of Balance of Payments

Ans. (c) Remittances to relative staying abroad—(iii) Debit side of Current Account of Balance of Payments

10. Government expenditure on Mid-Day Meal scheme running in government (state run) schools is a type of _____ expenditure in government budget.

(Fill up the blank with correct answer)

Ans. revenue

11. "India's GDP is expected to expand 7.5% in 2019-20: World Bank."

—The Economic Times.

Does the given statement mean that welfare of people of India increase at the same rate? Comment with reason. 3

Ans. No. Generally it is considered that an increase in Gross Domestic Product (GDP) of any economy (India in this case) ensures increase in welfare of the people of the country, but there are strong exceptions to this generalisation. Following are the reasons:

- (i) If with every increase in the level of GDP, distribution of GDP is getting more unequal, welfare level of the society may not rise.
- (ii) Composition of GDP may not be welfare-oriented even when the level of GDP tends to rise. There is no direct increase in the welfare of the masses if GDP has risen owing largely to the increase in the production of defence goods
- (iii) Non-monetary exchanges remain un-recorded, to which extent GDP remains underestimated. To that extent, rise in welfare is not reflected through GDP.

12. Calculate the value of Marginal Propensity to Consume (MPC), if in an economy, autonomous consumption is ₹ 500 crore, ex-ante investments are ₹ 4,000 crore and equilibrium level of income of the economy is ₹ 18,000 crore. 3

Ans. Given, autonomous consumption (\bar{C}) = ₹ 500 crore

Ex-ante investments (I) = ₹ 4,000 crore

Equilibrium level of income (Y) = ₹ 18,000 crore

At the equilibrium level,

$$Y = C + I$$

Or,
$$Y = \bar{C} + MPC(Y) + I$$

$$18,000 = 500 + MPC(18,000) + 4,000$$

$$18,000 = 4,500 + 18,000(MPC)$$

$$18,000(MPC) = 18,000 - 4,500$$

$$18,000(MPC) = 13,500$$

$$MPC = \frac{13,500}{18,000} = 0.75$$

Marginal propensity to consume = 0.75.

Or

Suppose in a hypothetical economy, the savings increase by ₹ 20 crore when national income increases by ₹ 100 crore. Compute the additional investments needed to attain an increase in national income by ₹ 6,000 crore? 3

Ans. Given, increase in savings (ΔS) = ₹ 20 crore

Increase in income (ΔY) = ₹ 100 crore

We know that,

$$\begin{aligned} \text{MPS} &= \frac{\Delta S}{\Delta Y} \\ &= \frac{20}{100} = 0.2 \end{aligned}$$

When MPS = 0.2, multiplier (K) will be

$$\begin{aligned} K &= \frac{1}{\text{MPS}} \\ &= \frac{1}{0.2} = 5 \end{aligned}$$

We also know,

$$\begin{aligned} K &= \frac{\Delta Y}{\Delta I} \\ 5 &= \frac{6,000}{\Delta I} \\ \Delta I &= \frac{6,000}{5} = 1,200 \end{aligned}$$

Hence, investment of ₹ 1,200 crore will be needed to attain an increase in national income by ₹ 6,000 crore.

13. Discuss any one of the following functions of a central bank:

- (a) As government's bank
- (b) Open market operations.

4

Ans. (a) As Government's Bank: Central bank acts as a banker, agent and financial advisor to the government. As a banker to the government, it keeps the accounts of all government banks and manages government treasuries. The loans are given to the government without any interest for short-term. It also transfers funds to the government. As an agent, it buys and sells securities, treasury bills on behalf of the government. Finally, it advises the government on economic, financial and monetary matters, with a view to maintaining stability in the economy.

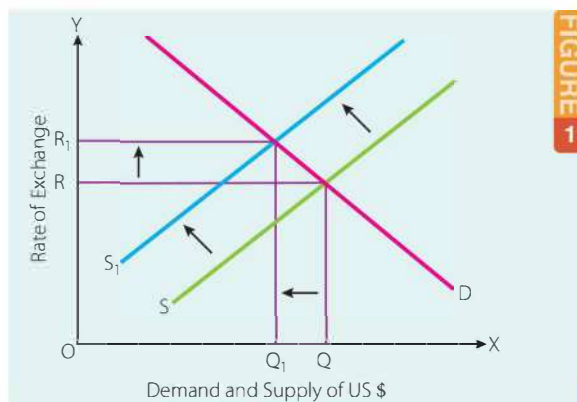
(b) Open Market Operations: Open market operations refer to sale and purchase of government securities in the open market by the central bank of the country. By selling the securities, the central bank withdraws cash balances from the system and by buying the securities, the central bank injects cash balances into the system.

To increase money supply (as during deflation), securities are purchased by the central bank. On the other hand, to decrease money supply (as during inflation) securities are sold off by the central bank. Buying the securities, the commercial banks reduce their cash deposits and hence, their capacity to create credit. Selling the securities, the commercial banks add to their cash reserves and enhance their capacity to create credit.

14. "Foreign Institutional Investors (FIIs) remained net seller in the Indian capital markets over the last few weeks". —The Economic Times.

State and discuss the likely effects of the given statement on foreign exchange rate with reference to the Indian Economy. 4

Ans. Selling of securities by Foreign Institutional Investors (FIIs) in the Indian capital markets will lead to fall in the supply of foreign currency in the economy. It is a supply shock that causes a backward shift of supply curve of foreign exchange for the Indian economy from S to S_1 as in Fig. 1. Consequently, equilibrium exchange rate will rise. More rupees are to be paid for buying a unit of foreign currency, leading to depreciation of domestic currency.

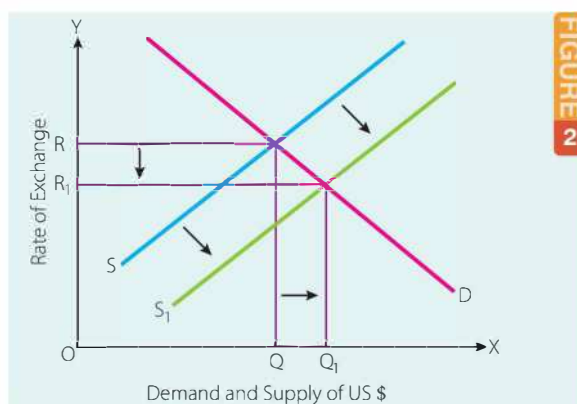


Or

'Many large Multinational Corporations (MNCs) have recently shifted their investments from China and have started their production in India, thereby boosting the Make in India plans of the Government'.

Presuming other factors being constant, discuss the effects of the given statement on Foreign Exchange rates with reference to the Indian Economy. 4

Ans. Investments by large multinational corporations (MNCs) in India will ensure greater inflow of foreign exchange in the economy, leading to an increase in the supply of foreign currency. It is a supply shock that causes a forward shift of supply curve of foreign exchange for the Indian economy from S to S_1 as in Fig. 2. Consequently, exchange rate will fall. Less rupees are to be paid for buying a unit of foreign currency, leading to appreciation of domestic currency.



15. Elaborate the objective of 'reallocation of resources' in the government budget. 4

Ans. The government reallocates resources with a view to maximising social welfare.

Market economies are believed to achieve optimum allocation of resources through the market forces of supply and demand. But, it leads to maximisation of profits, not necessarily the maximisation of social welfare. Social welfare often suffers as the market economies do not produce enough of public goods which satisfy collective needs of

the society. Also, these economies fail to account for 'externalities' of production which often lead to loss of social welfare on account of environmental degradation (including environmental pollution and excessive exploitation of the non-renewable resources). Through its budgetary policy, the government makes sufficient provision for the supply of public goods (like law and order, defence, public administration). It also addresses environmental issues by offering subsidies on the use of cleaner energy (CNG, LPG, solar and wind energy).

16. (a) 'Real Gross Domestic Product is a better indicator of economic growth than Nominal Gross Domestic Product'. 4

Do you agree with the given statement? Support your answer with a suitable numerical example.

- (b) Calculate 'Depreciation on Capital Asset' from the following data: 2

Particulars	Amount (in ₹ crore)
(i) Capital value of the asset	1,000
(ii) Estimated life of the asset	20 years
(iii) Scrap value	Nil

- Ans. (a) Yes, the given statement is correct. Real Gross Domestic Product (GDP) is a better indicator of economic growth than Nominal Gross Domestic Product (GDP). This is because only real GDP shows the change in the flow of goods and services in the economy, as it is estimated on the basis of constant price level.

The following table illustrates how real GDP and nominal GDP change in relation to change in price and output.

Year	Output (Units)	Price (₹ crore)	Real GDP (₹ crore)	Nominal GDP (₹ crore)	
2011-12	500	40	20,000	20,000	Situation-1
2018-19	500	50	20,000	25,000	
2011-12	500	40	20,000	20,000	Situation-2
2018-19	600	40	24,000	24,000	

In situation-1, real GDP [estimated at the constant price (₹ 40 crore)] remains constant (₹ 20,000 crore) between the period 2011-12 and 2018-19 even when nominal GDP rises from ₹ 20,000 crore to ₹ 25,000 crore. Rise in nominal GDP is owing to the rise in price, not output. Thus, only the market value of output rises, not the quantum of output, implying that there is no economic growth.

In situation-2, output rises from 500 to 600 units even when price is constant (₹ 40 crore). Accordingly, real GDP rises from ₹ 20,000 crore to ₹ 24,000 crore. This indicates economic growth, as people now have more goods and services to enjoy. Nominal GDP now coincides with real GDP, simply because price is constant.

$$\begin{aligned}
 \text{(b) Depreciation on Capital Asset} &= \frac{\text{Capital value of the asset} - \text{Scrap value}}{\text{Estimated life of the asset}} \\
 &= \frac{\text{₹ 1,000 crore} - 0}{20 \text{ years}}
 \end{aligned}$$

$$= \frac{\text{₹ 1,000 crore}}{20 \text{ years}}$$

$$= \text{₹ 50 crore}$$

Depreciation on capital asset = ₹ 50 crore.

Or

- (a) 'Circular flow of income in a two sector economy is based on the axiom that one's expenditure is other's income.'

Do you agree with the given statement? Support your answer with valid reasons. 3

- (b) Calculate Compensation of Employees from the following data: 3

Particulars	Amount (in ₹ crore)
(i) Profits after tax	20
(ii) Interest	45
(iii) Gross domestic product at market price	200
(iv) Goods and services tax	10
(v) Consumption of fixed capital	50
(vi) Rent	25
(vii) Corporate tax	5

- Ans. (a) Yes, the given statement is correct. In a two sector economy (comprising firms and households), the firms produce goods and services by hiring factor services from the households. In return for the use of factor services, the firms make factor payments to the households. Thus, expenditure by the firms on the purchase of factor services becomes factor income of the households. The factor income earned by the households is used to buy goods and services produced by the firms. Thus, expenditure by the households becomes income of the firms. Briefly, circular flow of income across households and firms is based on the axiom that expenditure by the firms becomes income of the households, and expenditure by the households becomes income of the firms.

- (b) Compensation of Employees

$$= \text{Gross domestic product at market price} - \text{Rent} - \text{Interest} - \text{Profits (Profits after tax + Corporate tax)} - \text{Consumption of fixed capital} - \text{Goods and services tax}$$

$$= \text{₹ 200 crore} - \text{₹ 25 crore} - \text{₹ 45 crore} - (\text{₹ 20 crore} + \text{₹ 5 crore}) - \text{₹ 50 crore} - \text{₹ 10 crore}$$

$$= \text{₹ 200 crore} - \text{₹ 25 crore} - \text{₹ 45 crore} - \text{₹ 25 crore} - \text{₹ 50 crore} - \text{₹ 10 crore}$$

$$= \text{₹ 45 crore}$$

Compensation of employees = ₹ 45 crore.

17. 'An economy is operating at underemployment level of income.' What is meant by the given statement? Discuss one fiscal measure and one monetary measure to tackle the situation. 6

- Ans. An economy is said to be operating at underemployment equilibrium level where $AD = AS$ but all those who are able to work and willing to work (at the existing wage rate) do not get work.

