PART-1: INTRODUCTORY MICRO ECONOMICS

CHAPTER-1: INTRODUCTION

I. **Choose the correct answer. (each question carries 1 mark)**

1. **The scarce resources of an economy have**
a) Competing usages   b) Single usages
c) Unlimited usages   d) None of the above

2. **Which of the following is an example of micro economic study?**
a) National income   b) Consumer behaviour
c) Unemployment   d) Foreign trade

3. **Central problems of an economy includes**
a) What to produce   b) How to produce
c) For whom to produce   d) All of the above

4. **Traditionally, the subject matter of economics has been studied under the following broad branches.**
a) Micro and Macro economics   b) Positive and Normative economics
c) Deductive and inductive economics   d) None of the above

Answers: **1) a,   2) b,   3) d,   4) a.**

II. **Fill in the blanks. (Each question carries 1 mark)**

1. Scarcity of resources gives raise to _____
2. In a centrally planned economy all important decisions are made by _____
3. _____ is a set of arrangements where economic agents can freely exchange their endowments or products with each other.
4. in reality, all economies are _____

Answers: **1) The problem of choice,   2) The Government,**
3) Market economy,   4) Mixed economies.

III. **Match the following. (each question carries 1 mark)**

A	B
1. Market economy	a) Government
2. Service of a teacher	b) Private
3. Centrally planned economy	c) Skill
4. Positive economics	d) Evaluate the Mechanism
5. Normative economics	e) Functioning of Mechanism

Answers: **1) b,   2) c,   3) a,   4) e,   5) d.**

IV. **Answer the following questions in 4 sentences. (Each question carries 2 marks)**

1. **Mention the central problems of an economy.**
a) What is produced and in what quantities?
b) How are these goods produced?
c) For whom are these goods produced?

2. **Distinguish between Micro and Macroeconomics.**

Micro economics	Macro economics
1. It is study of the behaviour of individual economic agents.	1. It is study of the behaviour of aggregate economic agents.
2. It has Narrow Scope.	2. It has Broad scope.
3. Determine the price and production level in the individual market.	3. Determine the price and production level in the national market.

4. For example: An individual,
            A firm, etc.
	4. For example: Aggregate production,
	            Aggregate price level, etc.

3. **Distinguish between Positive and Normative economics.**

Positive economics	Normative economics
1. Study of how different mechanisms function?	1. Study of Weather different mechanisms are desirable or not?
2. Studies how are the economic activities? What are the economic activities?	2. Studies the economic activities, How should be? and what should be?.
3. Studies Real concepts.	3. Studies Model concepts.
4. Studies cause and effects of economic activities.	4. Studies the economic activities, which is good? and which is bad?.

4. **What do you mean by production possibility set?**

The collection of all possible combinations of goods and services that can be produced in a given resources and technology is called production possibility set.

5. **What is opportunity cost?**

The opportunity cost of some activity is the gain forgone from the second best activity.

Or

The opportunity cost is a cost of having a little more of one good in terms of the amount of the other good that has to be forgone.

6. **What is production possibility frontier?**

The production possibility frontier is a curve which shows the combinations of maximum amount of two goods that can be produced with the full utilisation of resources and technology of the economy.

V.   Answer the following questions in 12 sentences. (Each question carries 4 marks)

1. **Briefly explain, how the Family farm, Weaver, Teacher can use their resources to fulfil their needs in a simple economy.**

Every individual has some amount of only a few of the goods and services that he would like to use. A family farm may own a plot of land, some grains, farming implements, may be a pair of bullocks and also the labour services of the family members. A weaver may have some yarn, some cotton and other instruments required for weaving cloth. The teacher in the local school has the skills required to impact education to the students. Some others in the society may not have any resources except their own labour services. Each of these decision making units can produce some goods or services by using the resources that it has and use part of the produce to obtain the many other goods and services which it needs. For example, the family farm can produce corn, use part of the produce for consumption purposes and produce clothing, housing and various services in exchange for the rest of the produce. Similarly, the weaver can get the goods and services that he wants in exchange for the cloth he produces in his yarn. The teacher

can earn some money by teaching students in the school and use the money for obtaining the goods and services that he wants. Each individual can thus use his resources to fulfil his needs.
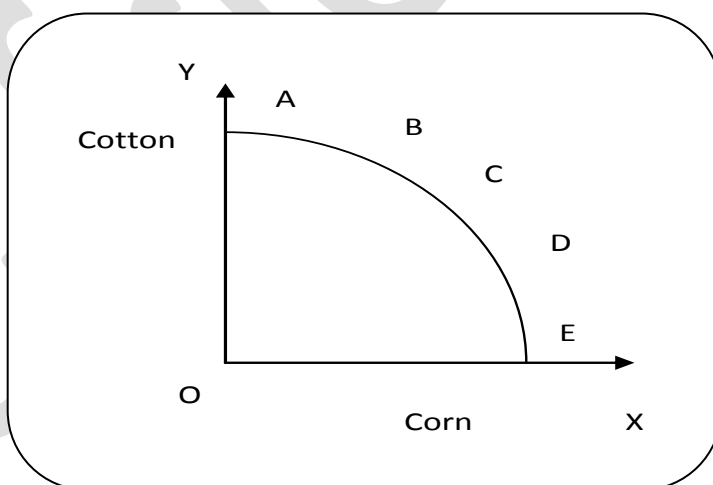
2. **Briefly explain the production possibility frontier.**

The production possibility frontier is a curve which shows the combinations of maximum amount of two goods that can be produced with the full utilisation of resources and technology of the economy. Considering an economy, which can produce corn and cotton by using its resources, we can prepare production possibilities as shown in the following table.

Possibilities	Corn	Cotton
A	0	10
B	1	9
C	2	7
D	3	4
E	4	0

Above table shows all possible combinations of production viz, A, B, C, D and E in an economy. If all the resources are used in the production of cotton, maximum 10 units of cotton can be produced, it is shown in the 'A' possibility. If all the resources are used in the production of corn, the maximum 4 units of corn can be produced, it is shown in the 'E' possibility. And economy can also produce 1 units of corn and 9 units of cotton in the 'B' possibility or 2 units of corn and 7 units of cotton in the 'C' possibility and 3 units of corn and 4 units of cotton in the 'D' possibility.

In an economy by using its resources can produce all the combinations of on or below the production possibility curve. The combinations below the production possibility curve show under employment of resources.

In the diagram, the curve A, B, C, D and E is the Production possibility frontier, If more of the resources are used in the production of corn, less resources are available for the production of cotton and vice-versa. Therefore, if we want to have more of one of the goods, we will have less of the other good, thus a cost of having a little more of one good in terms of the amount of the other good that has to be forgone is called Opportunity Cost.

2. **Briefly explain the central problems of an economy.**

In the course of basic economic activities, production, exchange and consumption of goods and services, every society faces scarcity of fresources. Competing (Alternative) usages of scarce resources cause for the problem of choice in the economy. Therefore the central problems of an economy concerned to the usages of scarce resources.

1) What is produced and in what quantities? (Problem of choice)

In the course of basic economic activities every economy has to decide that how much of the many possible goods and services it has to produce. For example,

a) Weather to produce more of food, clothing and housing? Or to have more luxury goods.

b) Weather to produce more Agriculture goods? Or to have more industrial goods?

2) How are these goods produced? (Problem of Technology)

In the production of goods and services, every economy has to decide on which of the available technologies to adopt? It means, how much of resources to use, weather to use more labour or more machines/capital. It is the problem of technology.

3) For whom are these goods produced? (Problem of allocating scarce resources)

Every economy faces the problem of allocating the scarce resources to the production of different possible goods and services, and of distributing the produced goods and services among the individuals. For example, who gets how much of the goods that are produced in the economy? and Whether or not to ensure a minimum amount of consumption for everyone in the economy? These types of problems are concerned with the problem of allocating resources.

3. **Write a short note on a centrally planned economy.**

In a centrally planned economy, the government or the central authority plans all the important activities in the economy. All important decisions regarding production, exchange and consumption of goods and services are made by the government. The central authority tries to achieve a particular allocation of resources and also try to distribute final combinations of goods and services to entire society. For example, If it is found that a good or service which is very important for the economy as a whole, e.g. education or health, is not produced in adequate amount by the individuals or their own, the government might try to induce the individuals to produce adequate amount of such a good or service, or alternatively the government may itself decide to produce the good or service. In a different context, if some people in the economy get so little a share of the final mix of goods and services produced in the economy that their survival is at stake, then the central authority may intervene and try to achieve an equitable distribution of the final mix of goods and services.

4. **Write a short note on market economy.**

If all economic activities are organised through the market, it is called market economy. In the market economy, all economic activities are organised by sellers and buyers, instead of government or central authority, which is contrast to a centrally planned economy.

The term market in the economics is quite different, for buying and selling commodities individuals may or may not meet each other in an actual physical location. So, in economics market is an institution which organises the free interaction of individuals pursuing their respective economic activities. In other words, a market is a set of arrangements, where economic agents can freely exchange there endowments or products with each other. For example, Buyers and sellers can exchange goods in village chowk (circle) or a super bazaar in a city or alternatively buyers and sellers can interact with each other through telephone or internet and conduct exchange commodities.

In the market system all goods and services will have a level of prices, which is mutually agreed by the buyers and sellers, in this price level they will be exchanged. If buyers demand more of a certain good, the price of that good will rise, this induces producers to produce more than they currently being produced. In this way the prices of goods and services send important information to all the individuals across the market and help achieve coordination in a market system. Thus, in a market system, the central problems, regarding how much and what to produce are solved through the coordination of economic activities brought by the price signals.

CHAPTER-2: THEORY OF CONSUMER BEHAVIOUR

I.   Choose the correct answer. (each question carries 1mark)

1. **Utility is**
   a) Objective   b) Subjective
   c) Both a & b   d) None of the above

2. **The shape of an indifference curve is normally**
   a) Convex to the origin   b) Concave to the origin
   c) Horizontal   d) Vertical

3. **The consumption bundles that are available to the consumer depend on**
   a) Colour and Shape   b) Price and Income
   c) Income and Quality   d) None of the above

4. **The equation of Budget line is**
   a) $px + p_1x_1 = M$ b) $M = p_0x_0 + px$
   c) $p_1x_1 + p_2x_2 = M$ d) $Y = Mx + C$

5. **The demand for these goods increase as income increases**
   a) Inferior goods   b) Giffen goods
   c) Normal goods   d) None of the above

6. **A vertical Demand curve is**
   a) Perfectly Elastic   b) Perfectly Inelastic
   c) Unitary Elastic   d) None of the above

7. **Ordinary Utility analysis expresses utility in**
   a) Numbers   b) Returns
   c) Ranks   d) Awards

   Answers: 1) b,   2) a,   3) b,   4) c,   5) c,   6) b,   7) c.

II.   Fill in the blanks. (Each question carries 1 mark)

   1. Want satisfying capacity of a commodity is _____.
   2. Two Indifference curves never _____ each other.
   3. As income increases, the demand curve for normal goods shifts towards _____.
   4. The demand for a good moves in the _____ direction of its price.
   5. Method of adding two individual demand curves is called _____.

   **Answers: 1) Utility,   2) Intersect,   3) Rightward or Outward,
   4) Opposite,   5) Horizontal summation.**

III.   Match the following. (each question carries 1 mark)

A	B
1. Demand curve	a) $d(p) = a - bp$
2. Linear demand curve	b) Downward sloping
3. Unitary elasticity of demand	c) Pen and Ink
4. Complementary goods	d) A family of indifference curve
5. Indifference Map	e) $|ed| = 1$

   Answers: 1) b,   2) a,   3) e,   4) c,   5) d.

IV. Answer the following questions in 4 sentences. (Each question carries 2 marks)

1. What are the differences between budget line and budget set?

Budget line	Budget set
1. Shows the combinations of two goods which cost exactly equal to the consumer's income.	1. Shows the combinations, which are attainable by consumer's income.
2. Budget line consists only the combinations which lie on the line.	2. Budget set consists the combinations which lie on and below the line.
3. Budget line's function is $P_1X_1 + P_2X_2 = M$	3. Budget set's function is $P_1X_1 + P_2X_2 \leq M$

2. What do you mean by inferior goods? Give example.

A type of goods which consumers' demand decreases with the rise in consumers' income are called inferior goods. For example, a) Low quality food items like coarse cereals. b) Low quality Residing houses like hut.

3. What is Monotonic preference?

Consumer always prefers a type of combinations which give higher level of utility consisting more quantity of goods is called Monotonic preference. It means consumer always prefer higher indifference curve in Indifference map.

4. State the law of demand.

The Law of demand states that other things remain constant there is a negative relationship between demand for a commodity and its price. In other words, when price of the commodity increases demand for it decreases and when price of the commodity decreases demand for it increases.

5. Mention two different approaches which explain consumer behaviour.

a) Cardinal Utility Analysis.   b) Ordinal Utility Analysis.

6. What do you mean by price elasticity of demand?

The Price elasticity of demand is a measure of the responsiveness of the demand for a good to changes in its price. It can be calculated by the following formula.

$$e_D = \frac{Percentage\ change\ in\ demand\ for\ the\ good}{Percentage\ change\ in\ price\ for\ the\ good}$$

V. Answer the following questions in 12 sentences. (Each question carries 4 marks)

1. Write the difference between total utility and marginal utility.

Total Utility: Utility derived from the consumption of different units of a commodity.

Marginal Utility: Change in total utility due to the consumption of an additional unit of a commodity.

Total utility	Marginal Utility
1. Utility derived from the consumption of different units of a commodity.	1. Change in total utility due to the consumption of an additional unit of a commodity.
2. Depends on the quantity of the commodity consumed.	2. Depends on the consumption of additional units.
3. $TU_n = MU_1 + MU_2 + ... + MU_n$	3. $MU_n = TU_n - TU_{n-1}$
4. As consumption increases total utility increases at a diminishing rate and starts to fall after reaching a maximum level.	4. As consumption increases marginal utility decreases and also reaches zero. Further consumption causes for negative marginal utility.

2. **Explain the indifference map with a diagram.**

An Indifference curve is a graph showing consumption of two goods that give the consumer equal satisfaction or utility. Or An Indifference curve is the locus of all point among which the consumer is indifferent. If we show preferences on all combinations of two commodities by a family of indifference curves it is called indifference map. So, indifference map refers to a set of indifference curves corresponding to different income level of the consumer.
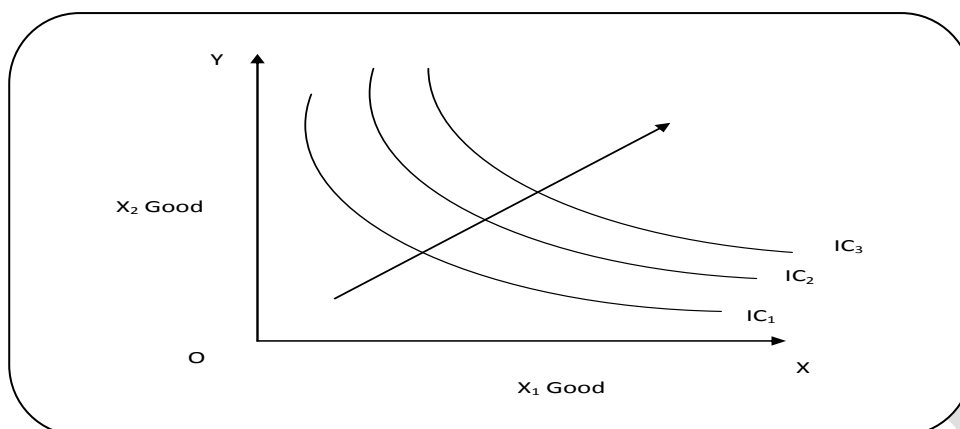
In the diagram X_1 good is measured on OX axis and X_2 good is measured on OY axis. IC_1, IC_2 and IC_3 curves are indifference curves. The indifference curve IC_1, which is below in the family of indifference curves, shows lesser preferences. The indifference curve IC_3, which is above in the family of indifference curves, shows higher preferences. Consumer always prefers higher indifference curve, which is above in the family of indifference curves. This type of preference is called Monotonic preference. The arrow indicates that bundles on higher indifference curves are preferred by the consumer to the bundles on lower indifference curves.

3. **Briefly explain the budget set with the help of a diagram.**

The set of bundles of two commodities available to the consumer is called the budget set. So, the budget set is the collection of all bundles that the consumer can buy with his income at the prevailing market prices. For example, a consumer having ₹20 and purchase two goods, the price of both goods is ₹5 and the goods are available only in integral units. The combinations available to buy are (0,0), (0,1), (0,2), (0,3), (0,4), (1,0), (1,1), (1,2), (1,3), (2,0), (2,1), (2,2), (3,0) (3,1) and (4,0). Among these combinations (0,4), (1,3), (2,2), (3,1) and (4,0) cost exactly ₹20 and all other bundles cost less than ₹20. Consumer cannot afford to buy bundles like (3,3) and (4,5) because they cost more than ₹20 at the prevailing prices.
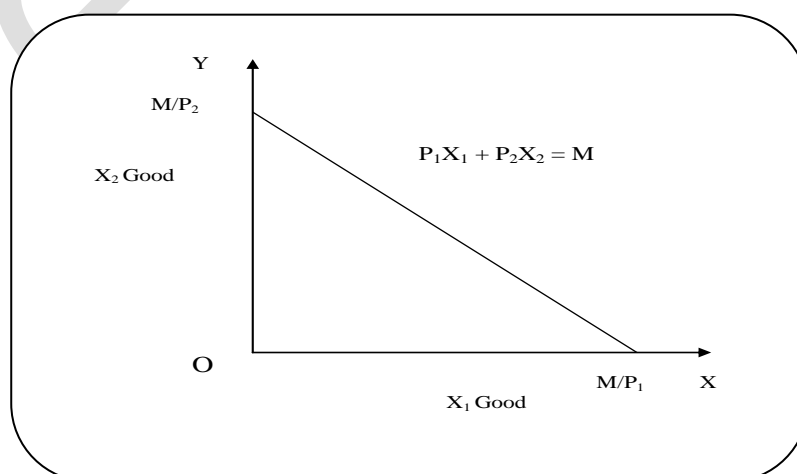
Consumer's income is assumed as M, goods X_1 and X_2 have P_1 and P_2 prices respectively. Consumer's income and expenditure shown as $P_1X_1 + P_2X_2 = M$. Here the expenditure on two goods is exactly equals to the income. The equation of Budget set can be expressed as $P_1X_1 + P_2X_2 \leq M$, it means budget set contains all combinations on and below the budget line.

4. **Explain the derivation of slope of the budget line.**

A line showing different combinations of two commodities which a consumer can purchase in a specific price by his entire income is called budget line. The slope of the budget line measures the amount of change in X_1 good per unit of change in X_2 good.
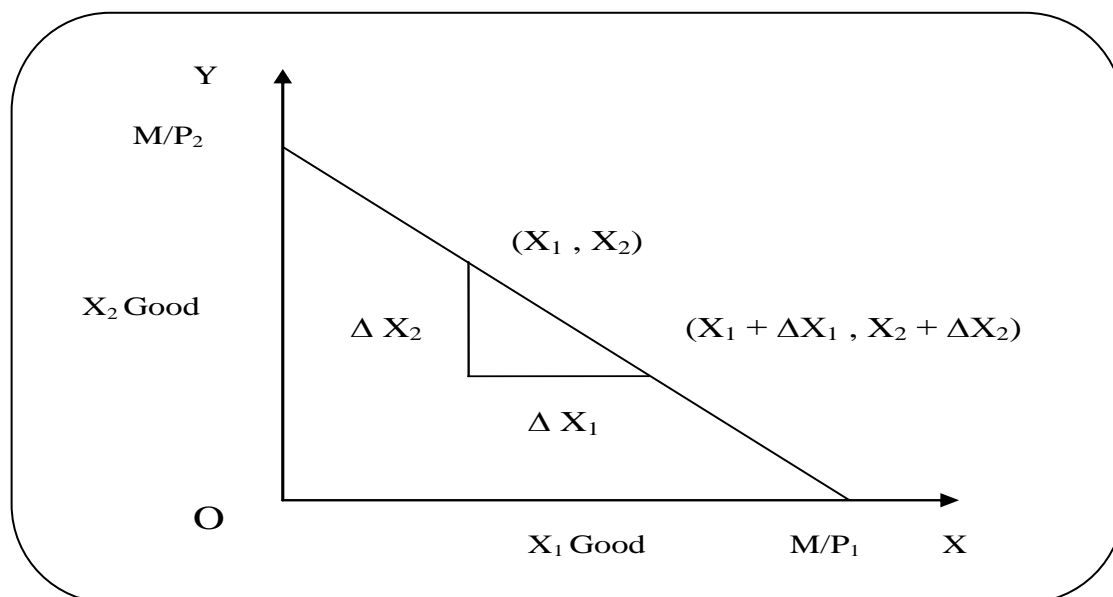
Considering any two points (X_1 , X_2) and $(X_1 + \Delta X_1 , X_2 + \Delta X_2)$ on the budget line, it must be the case that $P_1X_1 + P_2X_2 = M$ and $P_1 (X_1 + \Delta X_1) + P_2 (X_2 + \Delta X_2) = M$, if we subtract first equation in the second equation we will get $P_1\Delta X_1 + P_2\Delta X_2 = 0$.

$P_1 (X_1 + \Delta X_1) + P_2 (X_2 + \Delta X_2) = M$ equation can be written as $P_1X_1 + P_1\Delta X_1 + P_2X_2 + P_2\Delta X_2 = M$. i.e. $(P_1X_1 + P_1\Delta X_1 + P_2X_2 + P_2\Delta X_2 = M) - (P_1X_1 + P_2X_2 = M) = P_1\Delta X_1 + P_2\Delta X_2 = 0$.

If we rearrange the terms in the equation, $P_1\Delta X_1 + P_2\Delta X_2 = 0$, we get $\frac{\Delta X2}{\Delta X1} = -\frac{P1}{P2}$ this is the slope of the budget line.

5. **Write the differences between substitutes and complements.**

Substitute goods: Substitute goods are a type of goods which can be consumed one to another.
Complementary goods: Complementary goods are a type of goods which can be consumed together.

Substitute goods	Complementary goods
1. A type of goods which can be consumed one to another.	1. A type of goods which can be consumed together.

2. For example, - Coffee and Tea.
        - Bus and Train.
	2. For example, - Pen and Ink.
	         - Brick and cement.

3. If price of a good increases, the demand for substitute good also increases.	3. If price of a good increases, the demand for complementary good decreases.
4. If price of a good decreases, the demand for substitute good also decreases.	4. If price of a good decreases, the demand for complementary good increases.
5. The demand for a good moves in the same direction of the price of its substitutes.	5. The demand for a good moves in the opposite direction of the price of its complementary goods.

6. Explain the differences between normal and inferior goods with examples.

Normal goods: A type of goods for which the demand increases with the rise in consumer's income and decreases with the fall in consumer's income.

Inferior goods: A type of goods for which the demand increases with the fall in consumer's income and decreases with the rise in consumer's income.

Normal goods	Inferior goods
1. Demand increases with the rise in income and decreases with the fall in income.	1. Demand increases with the fall in income and decreases with the rise in income.
2. Demand for normal goods and income of the consumer move in the same direction.	2. Demand for inferior goods and income of the consumer move in the opposite direction.
3. For example, TV, Ornaments, Car, Bike, etc.	3. For example, ragi, arka, barly. hut, etc.
4. As income increases the demand curve for normal goods shifts rightward (outward) and vice-versa.	4. As income increases the demand curve for inferior goods shifts leftward (inward) and vice-versa.

VI. Answer the following questions in 20 sentences (each question carries 6 marks)

1. Explain the law of diminishing marginal utility with the help of a table and diagram.

Marginal Utility (MU) is the change in total utility due to consumption of one additional unit of a commodity. Law of diminishing marginal utility states that keeping constant consumption of other commodities, marginal utility from the consumption of each additional unit of a commodity declines as its consumption increases. Marginal utility can be calculated by using $MU_n = TU_n - TU_{n-1}$ formula, here MU_n is marginal utility of nth unit, TU_n is n^{th} unit's total utility and TU_{n-1} is total utility of previous unit of nth unit. The law of diminishing marginal utility can be understand through table and diagram as follows.

| Units	Total Utility	Marginal Utility
1	12	12
2	18	6
3	22	4
4	24	2
5	24	0
6	22	-2
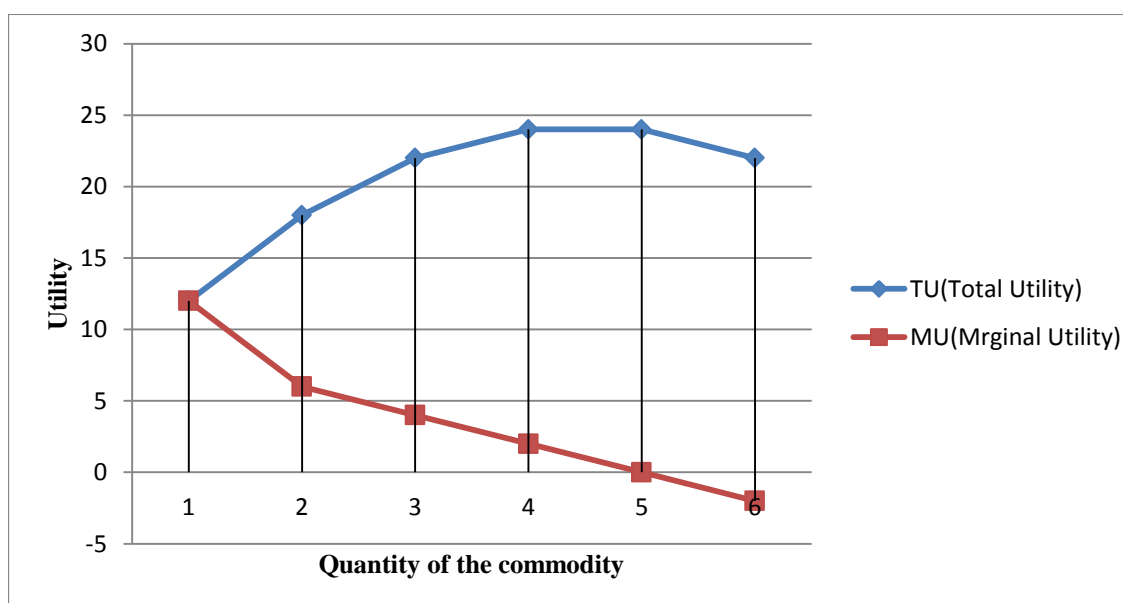
The table and diagram show the diminishing marginal utility, as consumption of additional units of a commodity increases the marginal utility goes on decreasing. When consumer consumes 1st unit of a commodity the total utility and marginal utility are at 12 units, when consumer consumes 2nd unit, total utility is at 18 units and marginal utility is at 6 units, when consumer consumes 5th unit, total utility reached maximum, i.e. 24 units, and marginal utility reached zero level. Further consumption, i.e. consumption of 6th unit, causes for the decreases in total utility. In this stage marginal utility become negative.

In the diagram TU and MU curves are total utility and marginal utility curves respectively. As consumption of additional units goes on increasing, TU curve increases at diminishing rate and starts falling after reached a maximum level. MU decreased continuously and became negative after reaching zero level.

2. **Explain the features of indifference curves with the help of diagrams.**

A curve showing different combinations of two commodities which give same level of utility is called Indifference curve. The features of indifference curves are as follows.

1) Indifference curve slopes downwards from left to right.
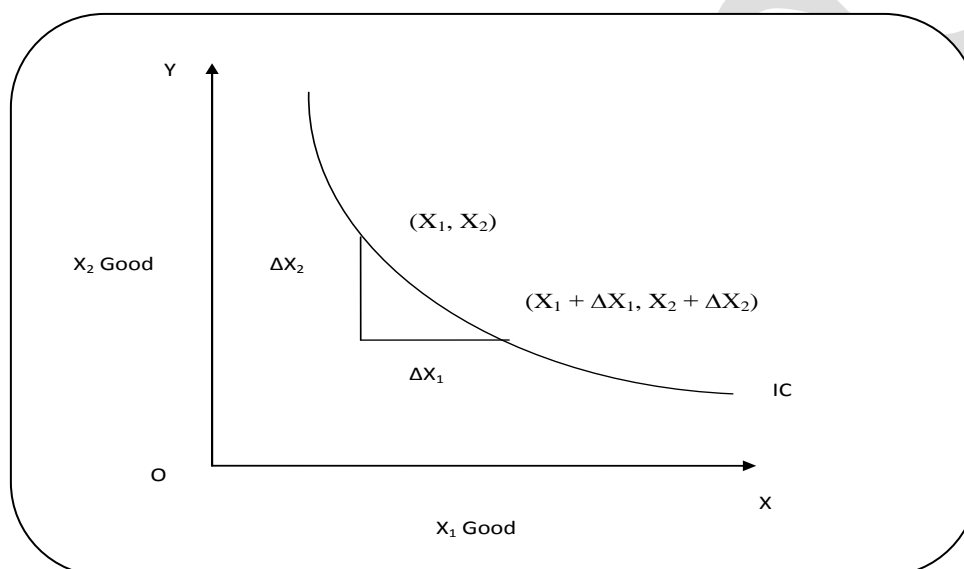
If the consumer wants to have one additional unit of a commodity he has to forgo some amount of another commodity and the sacrificing quantity decreases continuously. so, indifference curve slopes downwards from left to right.

2) Higher indifference curve gives greater level of utility.
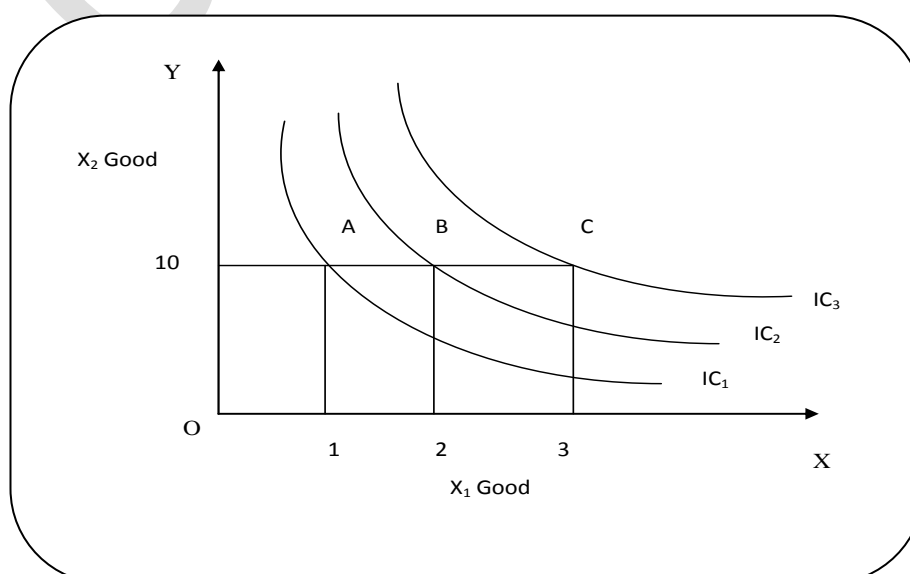
Higher indifference curve consists of combinations with more of both goods. So, higher indifference curve gives greater level of utility.

A, B and C are the Combinations of X_1 and X_2 goods shown in the diagram. All Combinations consist same amount of X_2 good and different levels of X_1 good. Combination B consists more of X_1 good compared to the combination A and combination C consists more of X_1 good, compared to the combination B. Combination B lies on a higher indifference curve compared to the combination A, like wise combination C lies on a higher indifference curve than combination B. So, higher indifference curve gives greater level of utility.

3) Two indifference curves never intersect each other.
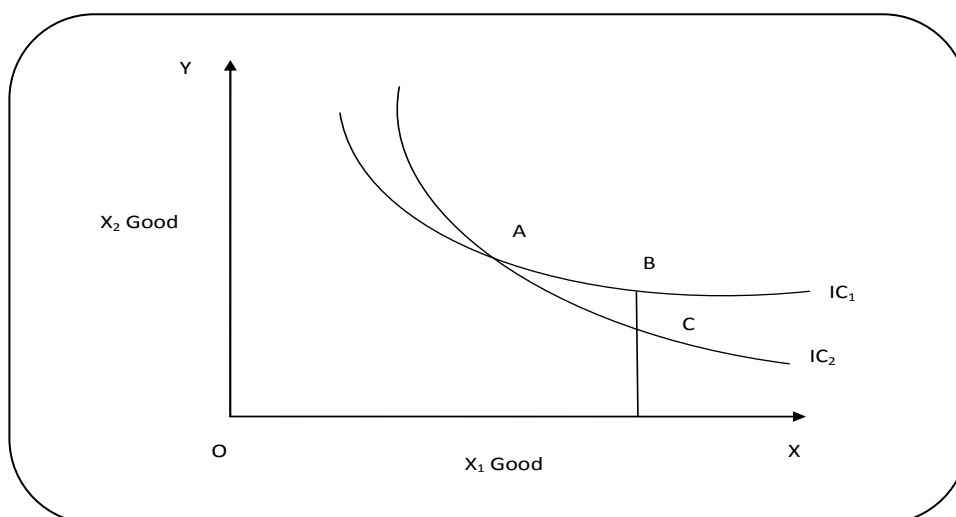
If two indifference curves intersect each other it gives conflict result. Combinations A and B lie on the IC_1 indifference curve which means A and B combinations give same level of satisfaction. Like that combinations A and C lie on the IC_2 indifference curve which means that A and C combinations give same level of satisfaction. But the combination B has more of X_2 good compared to the combination C. So, intersection of two indifference curves gives conflict result.

3. Explain the optimal choice of consumer with the help of a diagram.

A rational consumer always prefer a combination which gives higher level of utility among various combinations available to him this is known as optimal choice of consumer.

The consumer's optimal choice can be obtained at a point where budget line and indifference curve tangent. In this tangent point the slope of the budget line (Price Ratio) and Indifference curve (MRS) are equal.
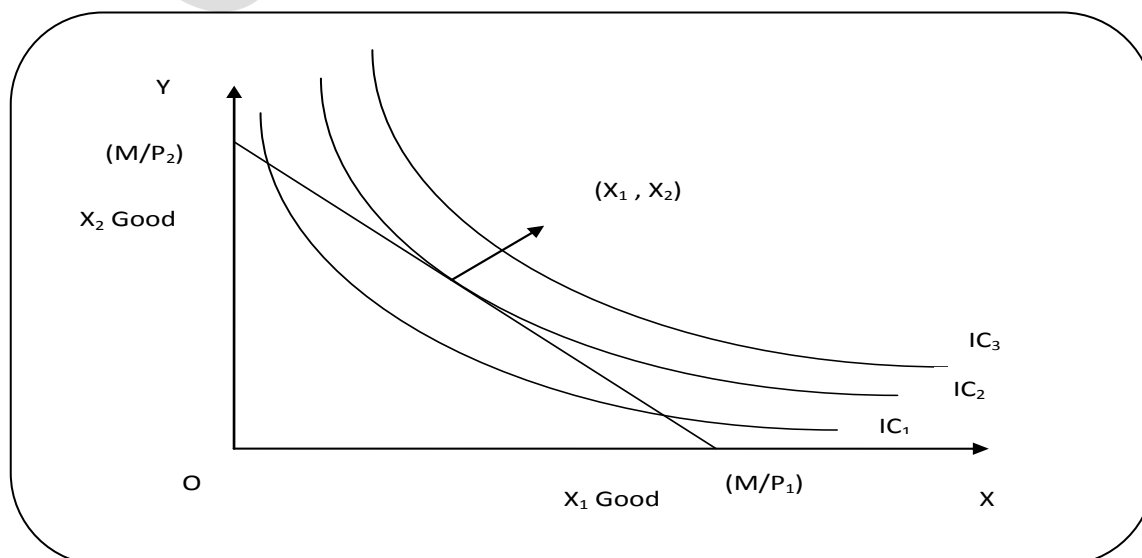
In the above diagram M/P_1 , M/P_2 line is budget line, IC_1 , IC_2 and IC_3 curves are indifference curves. Combinations which come below the budget line show less of cost than income and the combinations which come above the budget line show more of cost than the income, but the combinations which lie on the budget line, cost exactly equal to the income. Combinations or points on the budget line from the intersection of IC_1 curve contains less quantity of goods and gives less satisfaction to the consumer. Combinations on the IC_3 curve can't be attained because they are out of budget line, but the point $(X_1$, $X_2)$ which is tangent of IC_2 and budget line is optimal choice of consumer, in this point the slope of the budget line and the slope of the Indifference curve are equal.

4. **Explain the movement along the demand curve and shift in demand curve with the help of two diagrams.**

The amount of a good that the consumer demand depends on the Price of the good, Income of the consumer, Prices of other related goods, Taste and Preferences.

➢ **Movement along the demand curve.**

Other things remain constant, the Price of a commodity and its quantity demanded is reflected by the demand function. The graphical representation of demand function is demand curve.

Movement along with the demand curve is the change in the quantity of demanded with respect to change in the price. Consumers purchase less quantity when price increases and more quantity when price decreases. So, any changes in the price of the commodity causes for the movement along with the demand curve.
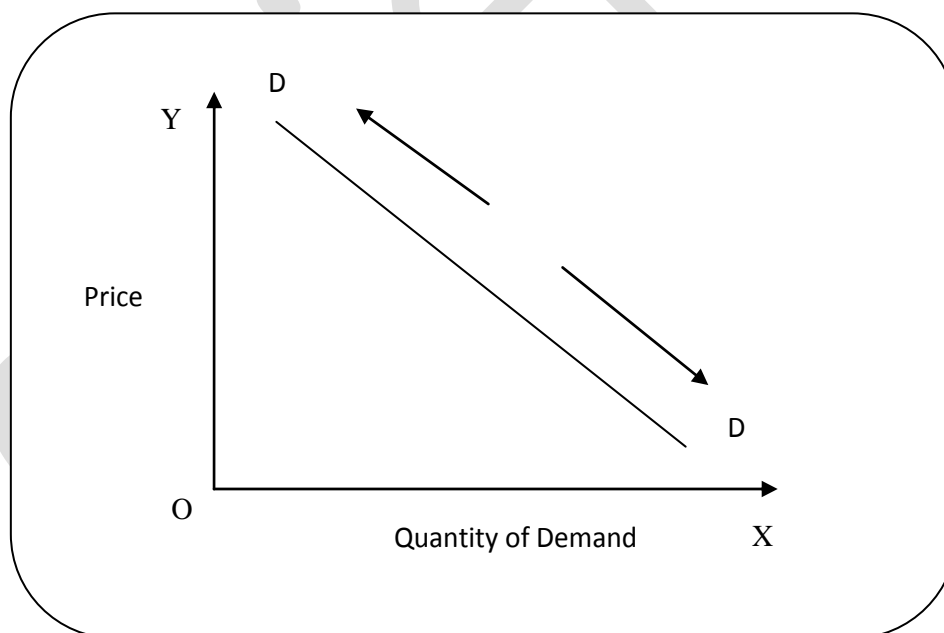
In the above diagram, quantity of demand is measured on OX axis and price is measured on OY axis. The curve DD is a demand curve, slopes from left to right and shows negative relationship between price and quantity of demand.

➢ **Shift in the demand curve.**

Except change in the price of the commodity, the changes in other things i.e. income of the consumer, prices of other commodities, tastes and preferences also cause for shift in the demand curve.
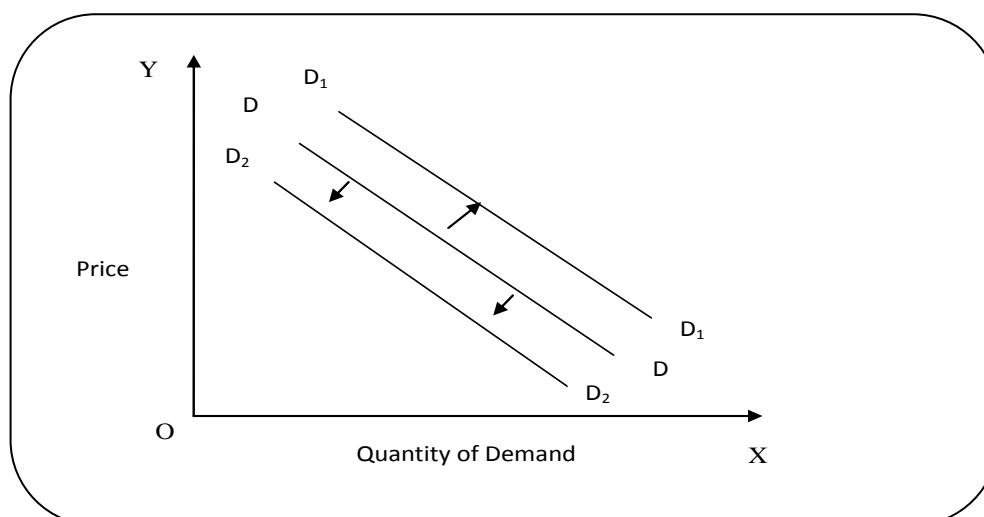
In the above diagram price is measured on OY axis and quantity of demand is measured on OX axis. The curve DD is original demand curve. When the price is constant, changes in other things cause for the shift of demand curve Inward (Leftward) and Outward (Rightward).

For example, Increase in income raises the purchasing power of consumer which causes for the shift in demand curve rightward from DD to D_1D_1 and decrease in income reduces purchasing power of consumer which causes for the shift in demand curve leftward from DD to D_2D_2.

5. **Explain the market demand with the help of diagrams.**

The market demand for a good at a particular price is the total demand of all consumers taken together. The market demand for a good can be derived from the individual demands. Suppose there are only two consumers in the market for a good. Suppose at price p', the demand of consumer 1 is q'_1 and that of consumer 2 is q'_2. Then the market demand of the good at p' is $q'_1 + q'_2$. Similarly, at price $\hat{p}$, if the demand of consumer 1 is $\hat{q}_1$ and that of consumer 2 is $\hat{q}_2$, the market demand of the good at $\hat{p}$ is $\hat{q}_1 + \hat{q}_2$. Thus the market demand for the good at each price can be derived by adding up the demands of the two consumers at that price. If there are more than two consumers in the market for a good, the market demand can be derived similarly.
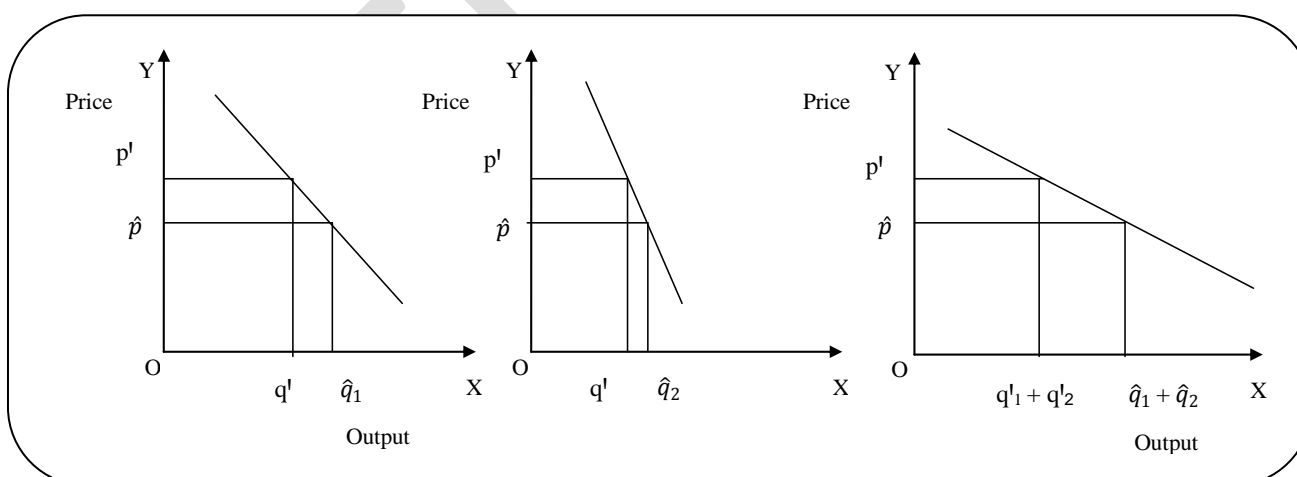
The market demand curve of a good can also be derived from the individual demand curves graphically by adding up the individual demand curves horizontally. This method of adding two individual demand curves is called horizontal summation.

VII. **Assignment and project oriented question. (Each question carries 5 marks).**

1. **A consumer wants to consume two goods. The price of Bananas is ₹ 5 and the price of Mangoes is ₹ 10. The consumer income is ₹ 40.**

   a) **How much Bananas can she consumes if she spends her entire income on that good?**
   b) **How much Mangoes can she consumes if she spends her entire income on that good?**
   c) **Is the slope of budget line downward or upward?**
   d) **Are the bundles on the budget line equal to the consumer's income or not?**
   e) **If you want to have more of Bananas you have to give up Mangoes. Is it true?**

   Answer:

   a) If consumer's income is ₹ 40 and Price of Banana is ₹ 5, consumer can consume 8 Bananas by spending his entire income.

   $$M = P \times Q$$
   $$40 = 5 \times Q$$
   $$40 = 5Q$$
   $$Q = 40/5 = 8 \qquad Q = 8$$

   b) If consumer's income is ₹ 20 and Price of mango is ₹ 10, consumer can consume 4 mangoes by spending his entire income.

   $$M = P \times Q$$
   $$40 = 10 \times Q$$
   $$40 = 10Q$$
   $$Q = 40/10 = 4 \qquad Q = 4$$

   c) Budget line slopes downward.
   d) All the combinations on the budget line are equal to the consumer's income.
   e) Yes, in order to get one additional unit of Banana some amount of Mangoes has to be forgone.

CHAPTER-3: PRODUCTION AND COSTS

I. **Choose the correct answer. (each question carries 1mark)**

1. **The Formula of Production function is.**

    a) $q = f(L, K)$ b) $q = d(P)$

    c) $y = f(x)$ d) None of the above.

2. **In the short run, a firm**

    a) Can change all the inputs   b) Cannot vary all the inputs

    c) Can keep the inputs fixed   d) None of the above

3. **The change in output per unit of change in the input is called**

    a) Marginal Product   b) Average Product

    c) Total Product   d) Product

4. **Cobb-Douglas Production function is**

    a) $q = (x, x)$ b) $q = (x_1, x_2)$

    c) $q = (x_1^{\alpha}, x_2^{\beta})$ d) $q = (0)$

5. **TC =**

    a) TVC   b) TFC

    c) TFC + TVC   d) AC + MC

Answers: **1) a,   2) b,   3) a ,   4) c,   5) c.**

II. **Fill in the blanks. (Each question carries 1 mark)**

1. In the long run , all inputs are _____
2. _____ is defined as the output per unit of variable input.
3. Marginal product and Average product curves are _____ in shape.
4. SMC curve cuts the AVC curve at the _____ point of AVC curve from below.
5. _____ is the set of all possible combinations of the two inputs that yield the same maximum possible level of output.

Answers: 1) Variable, 2) Average Product, 3) Inverse U, 4) Minimum, 5) Isoquant.

III. **Match the following. (each question carries 1 mark)**

A	B
1. CRS	a) $\Delta TC/\Delta q$
2. SAC	b) Long Run Average Cost
3. LRAC	c) Short Run Average Cost
4. TFC + TVC =	d) Constant Returns to Scale
5. SMC	e) TC

Answers: **1) d,   2) c,   3) b,   4) e,   5) a.**

IV. **Answer the following questions in 4 sentences. (Each question carries 2 marks)**

1. **What is Isoquant?**

     An Isoquant is the set of all possible combinations of the two inputs that yield the same maximum possible level of output.

2. **Give the meaning of the concepts of short run and long run.**

Short run: A period in which all factors of production can't be varied. In order to vary the output level the firm can vary only one factor of production, keeping other factors constant.

Long run: A period in which all factors of production can be varied. In order to vary the output level, the firm can vary all factors of production.

3. **Mention the types of Returns to scale.**
   - a) Increasing Returns to Scale (IRS)
   - b) Constant Returns to Scale (CRS)
   - c) Decreasing Returns to Scale (DRS)

4. **Name the Short run Costs.**
   - a) Total Fixed Cost (TFC)
   - b) Total Variable Cost (TVC)
   - c) Total Cost (TC)
   - d) Average Fixed Cost (AFC)
   - e) Average Variable Cost (AVC)
   - f) Short Run Average Cost (SAC)
   - g) Short Run Marginal Cost (SMC)

5. **What are Long Run Costs?**
   - a) Total Cost (TC)
   - b) Long Run Average Cost (LRAC)
   - c) Long Run Marginal Cost (LRMC)

V. **Answer the following questions in 12 sentences. (Each question carries 4 marks)**

1. **Explain Isoquant with the help of diagram.**

   An Isoquant is the set of all possible combinations of the two inputs that yield the same maximum possible level of output. Each Isoquant represents a particular level of output and is labelled with that amount of output.
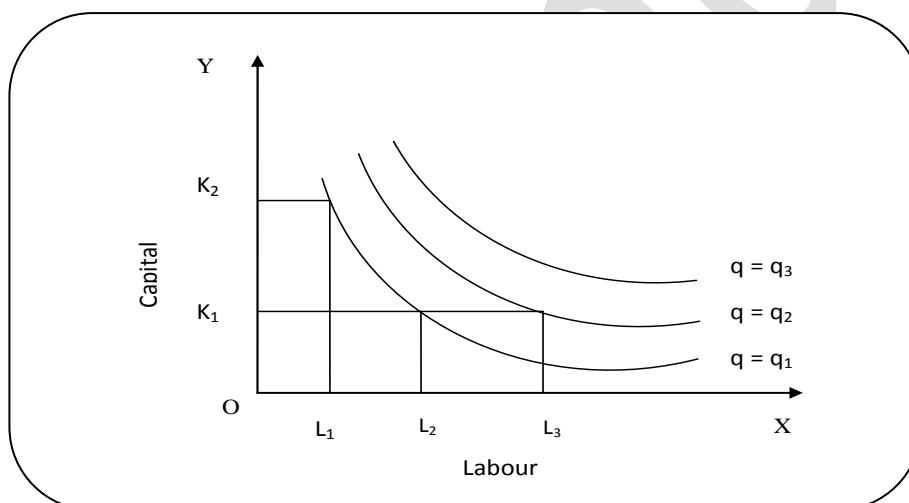
   In the diagram $q=q_1$, $q=q_2$ and $q=q_3$ are Isoquant curves, Producer can attain $q=q_1$ level of output from the combinations (L_1, K_2) and (L_2, K_1) which consist less labour with more capital and more labour with less capital respectively. If we fix capital at K_1 and increase labour to L_3 output increases and we reach a higher Isoquant $q=q_2$.

   In the Production process the same level of output can be produced with greater amount of one input and lesser amount of other input, therefore Isoquants are negatively sloped.

2. **Explain TP, MP and AP with the examples.**
   - ➤ **Total Product (TP):** The total amount of goods and services produced by the firm through the available time and factors of inputs is called Total Product. For example, A firm using 2 units of labour and fixed amount of capital, produced 24 units. So, the Total Product is 24 units.
   - ➤ **Marginal Product (MP):** The change in the output per unit of change in the input is known as Marginal Product. For example, a firm produced 10 units, by using 1unit of labour and fixed level of capital. When firm uses 2 units of labour, production increased to 24 units. So, Marginal Product is 14 units.

$$MP_L = TP_L - TP_{L-1} \qquad\qquad MP_L = \frac{\text{Change in output}}{\text{Change in input}}$$

$$MP_2 = TP_2 - TP_{2-1}$$

$$MP_2 = TP_2 - TP_1 \qquad \text{or} \qquad MP_L = \frac{\Delta TP}{\Delta L} = \frac{14}{1}$$

$$MP_2 = 24 - 10$$

$$MP_2 = 14 \qquad\qquad\qquad\qquad MP_L = 14$$

➢ **Average Product (AP):** The output per unit of variable input is called Average Product. For example, If a firm produced 24 units, using 2 units of labour and fixed amount of capital, the Average Product of variable input is 12 units.

$$AP_L = TP_L/L = 24/2 = 12$$

3. Write a brief note on returns to scale.

Analysing production in the long run in which the firm has more time to change all inputs is called Returns to Scale. If a firm produce q level of Production, using X_1 and X_2 inputs, the production function can be expressed as $q = f(X_1, X_2)$. If the firm increases inputs $t = (t > 1)$ times, the production can be in three stages, which mentioned as follows.

1) Constant Returns to Scale (CRS): When a proportional increase in all inputs results in an increase in output by the same proportion, the production function is known as Constant Returns to Scale.

$$f(tx_1, tx_2) = t . f(x_1, x_2)$$

2) Increasing Returns to Scale (IRS): When a proportional increase in all inputs results in an increase in output by a larger proportion, the production function is known as Increasing Returns to Scale.

$$f(tx_1, tx_2) > t . f(x_1, x_2)$$

3) Decreasing Returns to Scale (DRS): When a proportional increase in all inputs results in an increase in output by a smaller proportion, the production function is known as Decreasing Returns to Scale.

$$f(tx_1, tx_2) < t . f(x_1, x_2)$$

4. Explain the Long run Costs.

In the Long run all inputs are variable, there are no fixed costs. So, there is no difference between the total variable cost and the total cost.

a) Total Cost (TC): The total amount spent on all inputs in the production is called Total Cost.

Or

The cost incurred to produce a certain level of production is called Total Cost.

b) Long Run Average Cost (LRAC): Long Run Average Cost is defined as cost per unit of output. In order to calculate Long Run Average Cost the following formula is being used.

$$LRAC = TC/q$$

TC – Total Cost, q - Quantity of Production.

c) Long Run Marginal Cost (LRMC): Long Run Marginal Cost is the change in the total cost per unit of change in the output. Long Run Marginal Cost can be calculated by using following formula.

$$LRMC = TC_q - TC_{q-1}$$

TC_q – Total Cost of qth unit. TC_{q-1} – Total Cost of preceding unit of qth unit.

5. **The following table gives the TP$_L$. Find the AP$_L$ and MP$_L$.**

TP$_L$	0	15	35	50	40	48
L	0	1	2	3	4	5

Ans:

TP$_L$	L	AP$_L$	MP$_L$
0	0	0	0
15	1	15	15
35	2	17.5	20
50	3	16.66	15
40	4	10	-10
48	5	9.6	8

VI. Answer the following questions in 20 sentences (each question carries 6 marks)

1. **Explain the various short run costs.**
    In the Short run some of the factors of production are fixed and some of the factors of production are variable. Different costs of Short Run are as follows.
    a) Total Fixed Cost (TFC): The cost incurred to employ fixed inputs is called the Total Fixed Cost. For example, Rent of Building, Insurance Premium, etc.
    b) Total Variable Cost (TVC): The cost Incurred to employ Variable Inputs is called The Total Variable Cost. For Example, Raw Resources, Fuel, Electricity etc.
    c) Total Cost (TC): The sum of total fixed cost and total variable cost is Total Cost.

$$TC = TFC + TVC$$

d) Average Fixed Cost (AFC): The total fixed cost per unit of output is called Average Fixed Cost. Average Fixed Cost can be obtained from dividing the total fixed cost by the quantity of production.

$$AFC = TFC/q$$

e) Average Variable Cost (AVC): The total variable cost per unit of output is called Average Variable Cost. Average Variable Cost can be obtained from dividing the total variable cost by the quantity of production.

$$AVC = TVC/q$$

f) Short Run Average Cost (SAC): In the short run the total cost per unit of output is called Short Run Average Cost. In Order to get Short Run Average Cost we divide total cost by the total quantity of production.

$$SAC = TC/q$$

g) Short Run Marginal Cost (SMC): In the short run the change in the total cost per unit of change in the output is Short Run Marginal Cost.

$$SMC = \Delta TC/\Delta q \qquad \text{or} \qquad SMC_n = TC_n - TC_{n-1}$$

2. **Explain the shapes of Long Run Cost curves.**

  In the Long Run all factors of production vary. The concept of Returns to scale, in which all factors of production vary, has effect on the shapes of Long Run Cost Curves.

  When a proportional increase in all inputs results an increase in output by a larger proportion, the production function is known as Increasing Returns to Scale (IRS). Average cost curve falls as long as production is in Increasing Returns to Scale.

  When a proportional increase in all inputs results an increase in output by the same proportion, the production function is known as Constant Returns to Scale (CRS). Marginal Cost Curve intersects average cost curve, when production is in Constant Returns to Scale. Average cost curve remain constant as long as CRS operates.

  When a proportional increase in all inputs results an increase in output by the less proportion, the production function is known as Decreasing Returns to Scale (DRS). Average cost curve rises as long as DRS operates.
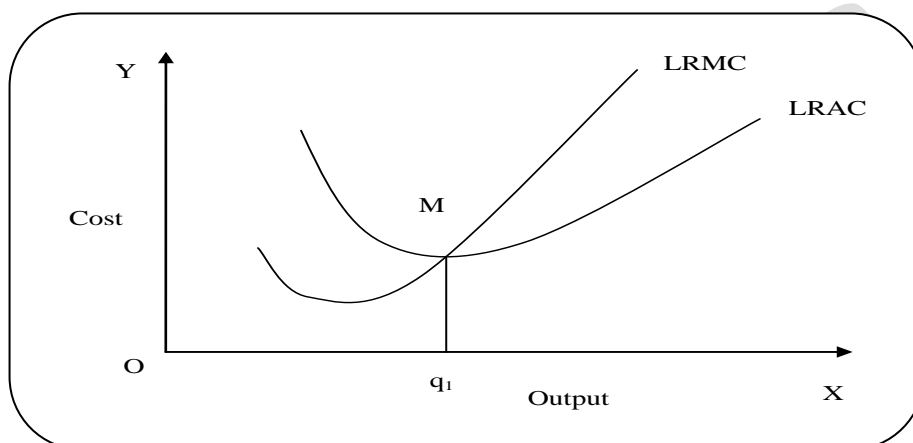
  For the first unit of output, both LRMC and LRAC are same. Then as output increases LRAC falls in the initial stage, after a certain point, it rises. As long as average cost is falling MC must be less than the average cost. When the average cost is rising Marginal cost must be rising and Marginal cost must be greater than the average cost. LRMC and LRAC are equal at the point where LRMC curve intersects LRAC, (LRMC = LRAC). LRMC and LRAC curves are U shaped, with the effect of returns to scale.

3. **Explain the shapes of Total Product, Marginal Product and Average Product Curves.**

  An increase in the amount of one of the inputs, keeping all other inputs constant, results in an increase in output. The changes in the TP, MP and AP can be explained with the help of diagrams as follows.

1) Total Production (TP): An increase in the amount of one input keeping all other inputs constant results increase in total output. Therefore total product curve slopes positively.
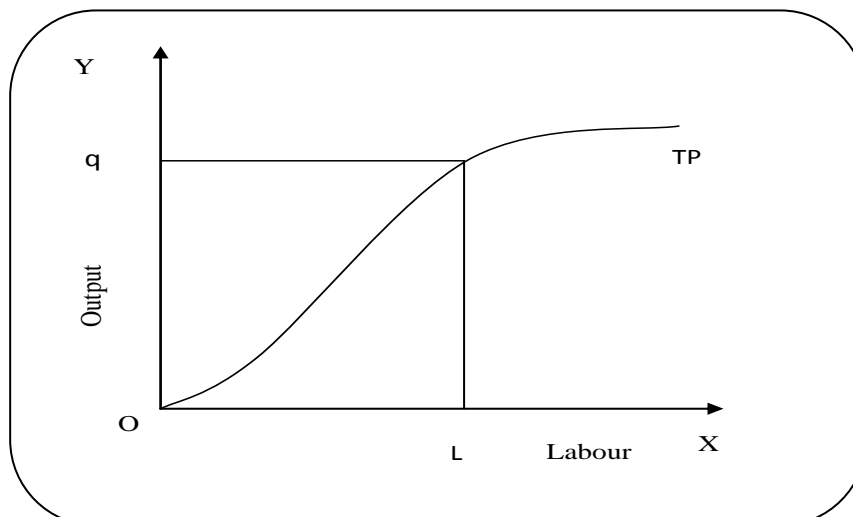
In the diagram oq level of production is produced by OL level of labour.

2) Average and Marginal Production (AP and MP).

For the first unit of input MP and AP are same. According to the law of variable proportion MP increases in the beginning and decreases after reaching maximum level. When MP increases AP also increases and when MP decreases AP reaches maximum level and then starts decreasing. So, AP and MP curves are inverse U-shaped.
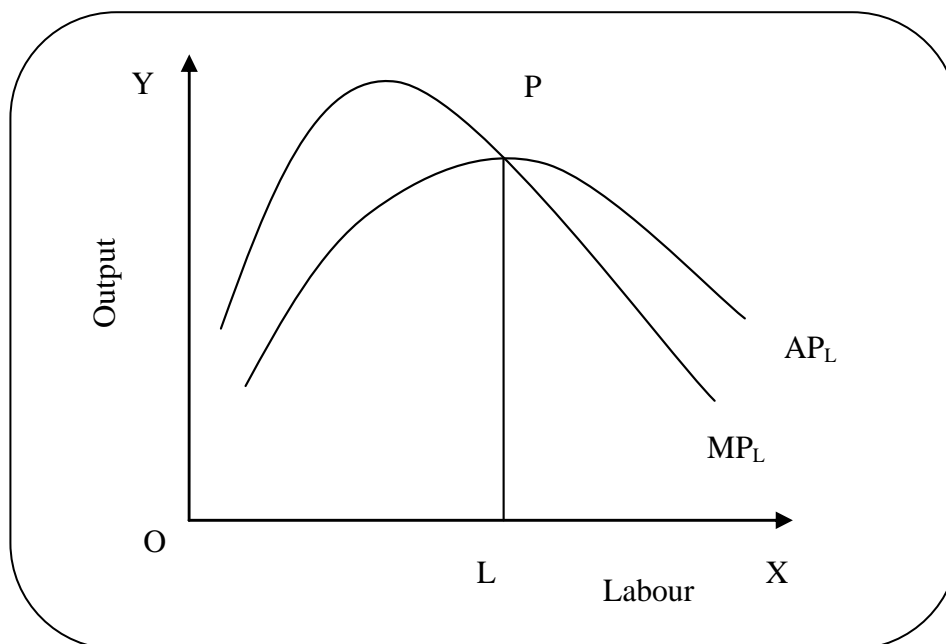
After we see the curves AP_L and MP_L we can come to the following decisions.

> ➢ MP must be greater than AP, when AP is increasing.
> ➢ MP must be less than AP, when AP is decreasing.
> ➢ MP curve must cut AP curve at its maximum point.

4. **A firm's SMC schedule is shown in the following table, TFC is ₹100, find TVC, TC, AVC and SAC schedules of the firm.**

Q	0	1	2	3	4	5	6
TC	-	500	300	200	300	500	800

Ans:

Q	SMC	FC	TVC	TC	AVC	SAC
0	-	100	-	100	-	0
1	500	100	500	600	500	600
2	300	100	800	900	400	450
3	200	100	1000	1100	333.33	366.66
4	300	100	1300	1400	325	350
5	500	100	1800	1900	360	380
6	800	100	2600	2700	433.33	450

5. **Explain the Law of Variable Proportions with the help of a diagram.**

Law of Variable Proportions also known as Law of Diminishing Marginal Product. The law of variable proportions states that The Marginal Product of a factor input initially rises with its employment level but after reaching a certain level of employment it starts falling.

If we hold one factor fixed and keep increasing the other, the factor proportions change initially as we increase the amount of the variable input, the factor proportions become more and more suitable for

the production and marginal product increases. But, after a certain level of employment, the production process becomes too crowded with the variable input which results fall in the marginal product. It is shown in the following table and diagram.

Labour	TP	MP_L	AP_L
0	0	-	-
1	10	10	10
2	24	14	12
3	40	16	13.33
4	50	10	12.5
5	56	6	11.2
6	57	1	9.5
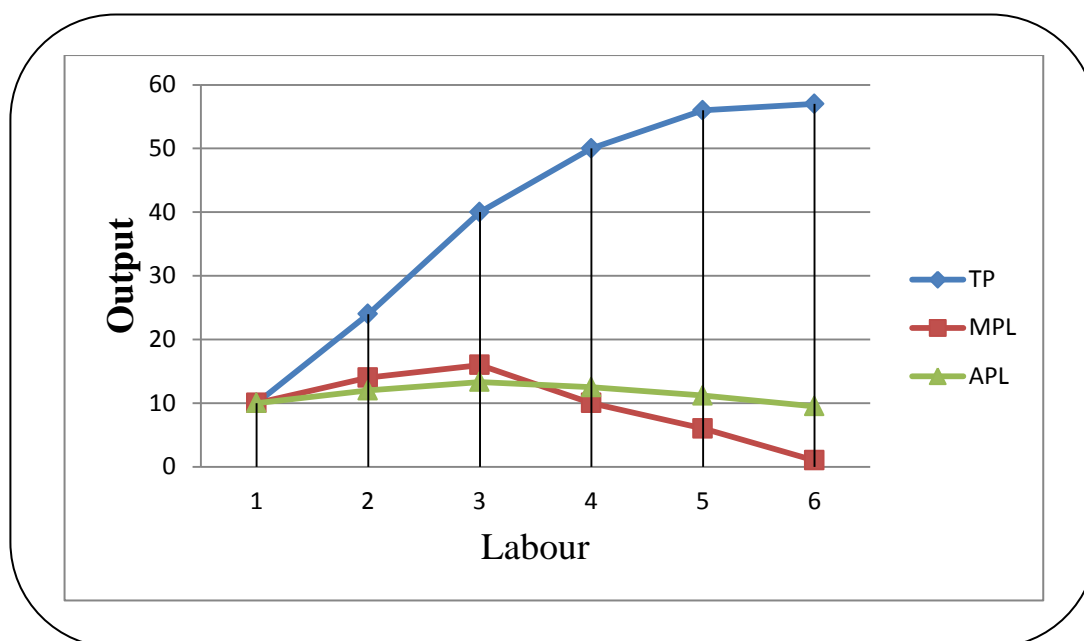
Above table and diagram show the production of a firm with the increased use of labour input and the fixed use of land input. When the firm uses 1st unit of labour 10 units of TP, AP and MP are obtained. When the firm uses 2nd unit of labour TP, AP and MP are increased with the efficient use of land. When 3rd unit of labour is used MP reached maximum level 16 units. Further increase in labour input decreases MP and AP. This is because of crowded use of variable input labour, compared to the fixed input land.

In the diagram TP, MP and AP curves are Total Product, Marginal Product and Average Product curves respectively. As labour input increased in the Production initially TP, MP and AP are increased, then MP starts falling and moves by cutting AP curve at its maximum point. AP after reaching maximum level moves by falling. TP reached maximum level by increasing in a decreasing rate.

VII.   Assignment and project oriented questions. (Each question carries 5 marks).

   1. Find the missing Products in the following table.

Factor-1	TP	MP_L	AP_L
0	0	0	0
1	10	-	10
2	24	-	12
3	40	16	13.33
4	-	10	-
5	-	6	11.2
6	57	1	9.5

Ans:

Factor-1	TP	MP$_L$	AP$_L$
0	**0**	**0**	**0**
1	**10**	**10**	**10**
2	**24**	**14**	**12**
3	**40**	**16**	**13.33**
4	**50**	**10**	**12.5**
5	**56**	**6**	**11.2**
6	**57**	**1**	**9.5**

(For Blind students only)

Explain the meaning of TP, MP and AP.

➢ **Total Product (TP):** The total amount of goods and services produced by the firm through the available time and factors of inputs is called Total Product. For example, a firm using 2 units of labour and fixed amount of capital produced 24 units. So, the Total Product is 24 units.

➢ **Marginal Product (MP):** The change in the output per unit of change in the input is known as Marginal Product. For example, a firm produced 10 units, by using 1unit of labour and fixed level of capital. When firm uses 2 units of labour, production increased to 24 units. So, Marginal Product is 14 units.

$$MP_L = TP_L - TP_{L-1}$$ $$MP_L = \frac{\text{Change in output}}{\text{Change in input}}$$

$$MP_2 = TP_2 - TP_{2-1}$$

$$MP_2 = TP_2 - TP_1 \qquad \text{or} \qquad MP_L = \frac{\Delta TP}{\Delta L} = \frac{14}{1}$$

$$MP_2 = 24 - 10$$

$$MP_2 = 14 \qquad\qquad\qquad\qquad\qquad MP_L = 14$$

➢ **Average Product (AP):** The output per unit of variable input is called Average Product. For example, if a firm produced 24 units, using 2 units of labour and fixed amount of capital, the Average Product is 12 units.

$$AP_L = TP_L/L = 24/2 = 12$$

CHAPTER-4: The Theory of Firm under Perfect Competition.

I. **Choose the correct answer. (each question carries 1mark)**

1. **The product in a perfect competition are**
   - a) Heterogeneous
   - b) Homogenous
   - c) Luxury
   - d) Necessary

2. **The increase in total revenue for a unit increase in the output is**
   - a) Marginal Revenue
   - b) Average Revenue
   - c) Total Revenue
   - d) Fixed Revenue

3. **The firm's profit is denoted by**
   - a) Σ
   - b) Δ
   - c) $\emptyset$
   - d) π

4. **When the supply curve is vertical the elasticity of supply is**
   - a) $e_s = 1$
   - b) $e_s > 1$
   - c) $e_s = 0$
   - d) $e_s = \infty$

5. **The revenue per unit of output of a firm is called as**
   - a) TR
   - b) MR
   - c) AR
   - d) None of the above

   Answers: 1) b,   2) a,   3) d,   4) c,   5) c.

II. **Fill in the blanks. (Each question carries 1 mark)**

1. Price taking behaviour is the single most distinguishing characteristic of _____market.
2. _____ is a tax that the government imposes per unit sale of output.
3. For a price taking firm marginal revenue is equal to _____.
4. The point of minimum AVC where the SMC curve cuts the AVC curve is called _____.
5. _____cost of some activity is the gain forgone from the second best activity.

   Answers: 1) Perfect Competition,   2) Unit Tax,   3) Market Price,
   **   4) Shut down point,   5) Opportunity.**

III. **Match the following. (each question carries 1 mark)**

	A		B
1.	MR =	a)	Perfect information
2.	$\pi =$	b)	Zero Profit
3.	AR =	c)	$\Delta TR/\Delta Q$
4.	Normal Profit	d)	TR - TC
5.	Perfect Competition	e)	TR/Q

   Answers: 1) c,   2) d,   3) e,   4) b,   5) a.

IV. **Answer the following questions in 4 sentences. (Each question carries 2 marks)**

1. **Mention the conditions needed for profit by a firm under perfect competition.**
   1) The Price must equal MC (P = MC).
   2) Marginal Cost must be Non-decreasing at q_0.
   3) For the firm to continue to produce in the short run, Price must be greater than or equal to the Average Variable Cost (P ≥ AVC). In the long run, Price must be greater than or equal to the average cost (P ≥ AC).

2. **Give the meaning of Shut down Point.**

In the short run where the SMC curve cuts the minimum point of SAVC curve that point is called Shut down point. Below this point there will be no production. In the long run minimum point of LRAC curve is the Shutdown Point.

3. **Write the meaning of Opportunity Cost with an example.**

The Opportunity Cost of some activity is the gain forgone from the second best activity. For example, we have ₹1000, we wish to invest in our family business. Instead of that activity either we can invest in bank-1, which gets 10 percent interest. Or we can invest in Bank-2, which gets 5 percent interest. The Opportunity Cost of investing ₹1000 in our family is the forgone interest of Bank-1.

4. **Mention the two determinants of a firm's Supply curve.**

1) Technological Progress.   2) Input prices.

5. **Give the meaning of Price elasticity of supply and write its formula.**

The Price elasticity of supply measures the responsiveness of quantity supplied to changes in the price of the good.

$$e_s = \frac{\text{Percentage change in quantity of supply}}{\text{Percentage change in price}}$$

V. **Answer the following questions in 12 sentences. (Each question carries 4 marks)**

1. **Write a short note on profit maximisation of a firm under the following conditions.**
   a) P = MC.   **b) MC must be non-decreasing at q_0.**

   ➤ **Condition 1: Profit is maximum when P = MC.**

   Profit is the difference between total revenue and total expenditure (π = TR - TC). Both total revenue and total cost increase as output increases, as long as the change in total revenue is greater than the change in total cost, profit will continue to increase. If marginal revenue is greater than marginal cost, profit increases and if marginal revenue is less than marginal cost, profit will falls. So, we can conclude that profit is maximum at the level of output where marginal revenue is equal to marginal cost (MR = MC).

   In perfect competitive market, we have established that the MR = P, so the firm's profit is maximum at the level of output where P=MC.

   ➤ **Condition 2: Marginal cost must be non-decreasing at q_0.**

   As production increases marginal cost goes on decreasing, it reaches minimum level then starts increasing.
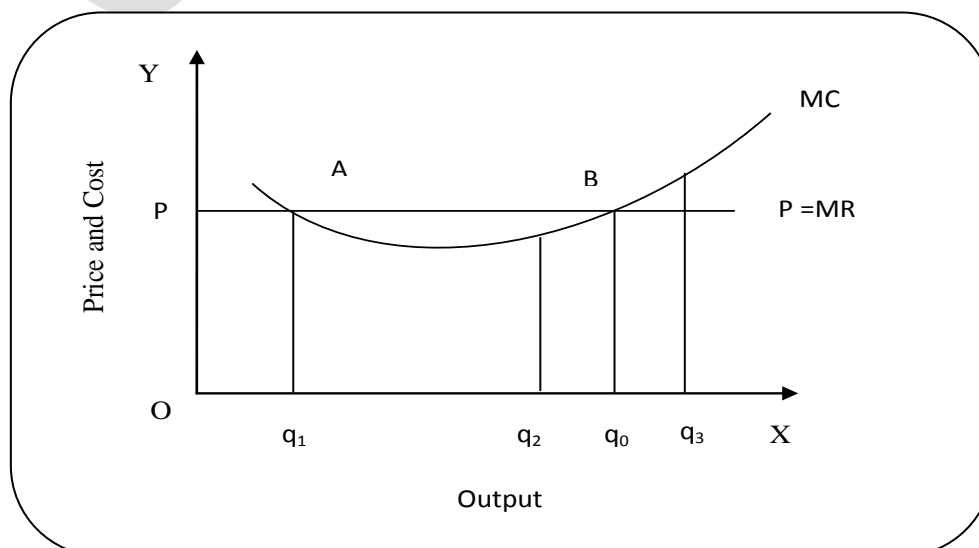
In the diagram q_1 level of production, in which Price is equal to marginal cost, does not maximise the level of profit, because marginal cost is more than price in the earlier production of q_1. In the q_2 level of production, price is more than MC, further production increases the profit. In the q_3 level of production price is less than MC, so, in this level of production firm incurs loss, but in the q_0 level of production (equilibrium production), price is equal to MC (P = MC), and MC is not decreasing at q_0 but increasing.

2. Explain the determinants of a firm's supply curve.

The supply curve of the firm is a part of its marginal cost curve. Thus, any factor that affects a firm's marginal cost curve is a determinant of its supply curve. Such factors discussed as follows.

1) Technological Progress: If the firm produces more level of output by using same level of inputs is called Technological Progress. And if the firm produces same level of output by using less level of inputs is also called Technological Progress. Due to Technological progress the firm's MC decreases, which causes for the rightward (downward) shift of MC curve. The supply curve of the firm is a part of the MC curve. So, after Technological Progress the firm sales more product at given market prices.

2) Input Prices: If the price of an input increases the cost of production also raises, consequently AC and MC increase, MC curve shifts leftward (upward). The supply curve of the firm is a part of the MC curve, so, after increase in input prices the firm sales less product at given market prices.

3. Explain the features of perfect competition.

A market having a large number of buyers and sellers, producing homogeneous product and selling at a single price is called perfectly competitive market.

Features of Perfect Competitive Market

1) Large Number of Buyers and Sellers: Perfect Competitive Market consists a large number of buyers and sellers and no one buyers and seller is able to influence the market.

2) Homogenous Product: Each firm produces and sells a homogenous product. The Product of one firm can't be different from the product of any other firm, it means buyers can buy commodities from any firms and if they buy from any firms they get same product.

3) Free entry and free exit: Free entry and free exit mean that it is easy for firms to enter the market, as well as leave the market. This condition is essential for the existence of large number of firms. If entry is restricted or difficult, the number of firms in the market would be small.

4) Perfect Information: Perfect information implies that buyers and all sellers are completely informed about the price, quantity and other relevant details about the product as well as market.

5) Price taking behaviour: In the perfect competitive market no one firm is able to influence the market. So, firms in the perfect competitive market would have price taking behaviour.

4. Write about shutdown point, Normal profit and Break-even Point.

Shutdown Point: In the short run minimum point of AVC at which SMC curve cuts the AVC curve is the shutdown point of the firm. In the long run minimum point of LRAC at which LRMC curve cuts the LRMC curve is the shutdown point of the firm. Below these points there will be no production.

Normal Profit: The minimum level of profit that is needed to keep a firm in the existing business is defined as Normal profit. A firm that does not make normal profit is not going to continue in business. Normal profits are therefore a part of the firm's total costs. Profit that a firm earns over and above the normal profit is called the super-normal profit.

Break-even point: The point on the supply curve at which a firm earns only normal profit is called the break-even point of the firm. In the short run the point of minimum average cost at which the supply curve cuts the SAC curve is the break-even point of the firm. In the long run the

point of minimum average cost at which the supply curve cuts the LRAC curve is the break-even point of the firm.

VI. Answer the following questions in 20 sentences (each question carries 6 marks)

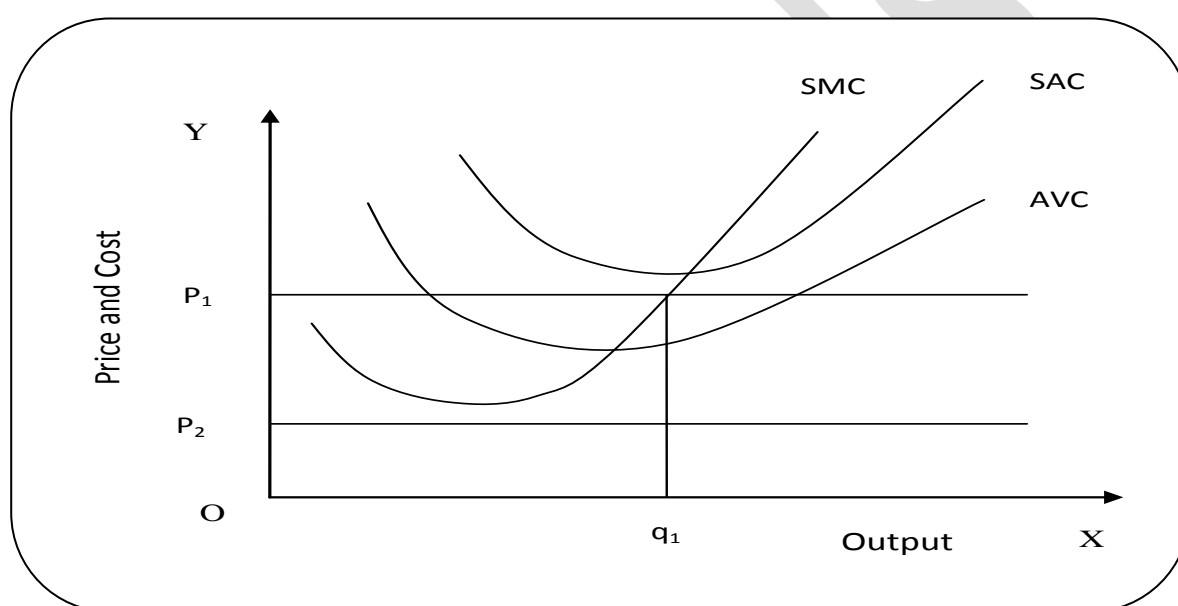### 1. Explain the short run supply curve of a firm with the help of a diagram.

The supply curve shows the levels of output that a firm chooses to produce at different market prices. Short run supply curve of the firm can be studied in two cases as follows.

Case 1: Price is greater than or equal to the minimum AVC. (P ≥ AVC)

If market price is P_1, which is more than the minimum AVC, SMC curve cuts price curve at its increasing part, and q_1 level of output produced. It means in the short run market price P_1 is equal at q_1 level of output which shown in the following diagram.

Case 2: Price is less than the minimum AVC. (P < AVC)

If market price is P_2, which is less than the minimum AVC, the firm, having the goal of profit maximising, does not wish to produce. Therefore when market price is P_2 the firm produces zero output, which shown in the following diagram.

Considering above two cases, we can come to a conclusion, short run supply curve of a firm is the rising part of SMC curve from the minimum point of AVC curve and the output is zero at all prices which are less than AVC.
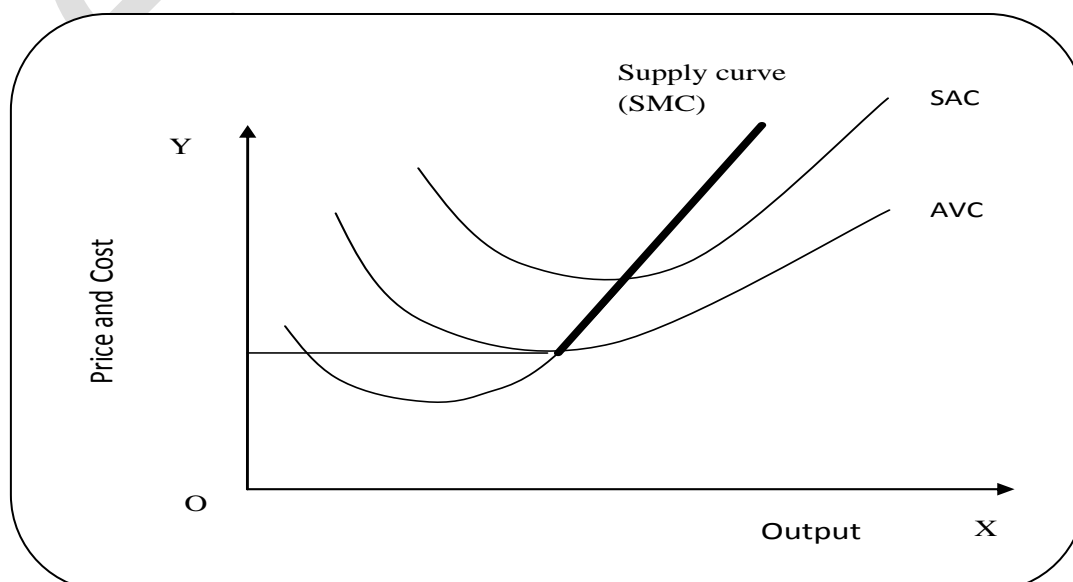
In the above diagram the rising part of SMC curve from the minimum point of AVC curve, which is shown in bold line, is the short run supply curve of the firm.

2. **Explain the Total Revenue and Average Revenue of a firm under perfect competition with the help of diagrams.**

Total Revenue: A firm earns revenue by selling the good that it produces in the market. Let the market price of a unit of the good be p. Let q be the quantity of the good produced, and therefore sold, by the firm at price p. Then Total Revenue (TR) of the firm is defined as the market price of the good (p) multiplied by the firm's output (q).

$$TR = p \times q$$

For example, let the market for candles be perfectly competitive and let the market price of a box of candles be Rs 10. For a candle manufacturer, the relationship of total revenue with the output is shown in the following table and diagram.

Boxes Sold	TR (inRs)	AR (inRs)
0	0	0
1	10	10
2	20	10
3	30	10
4	40	10
5	50	10
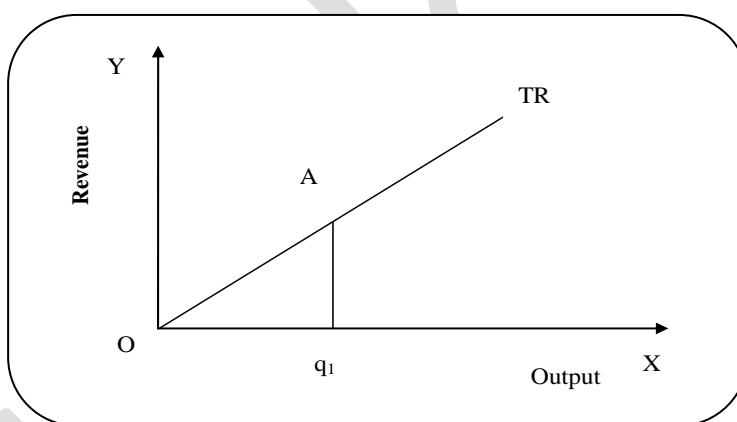
Total Revenue curve is upward sloping, which shows that as output increases the Total Revenue increases and as output decreases the Total Revenue decreases.

Average Revenue: The average revenue (AR) of a firm is defined as total revenue per unit of output. Average revenue can be obtained by dividing the total revenue by output sold.

$$AR = \frac{TR}{q} = \frac{p \times q}{q} = p$$
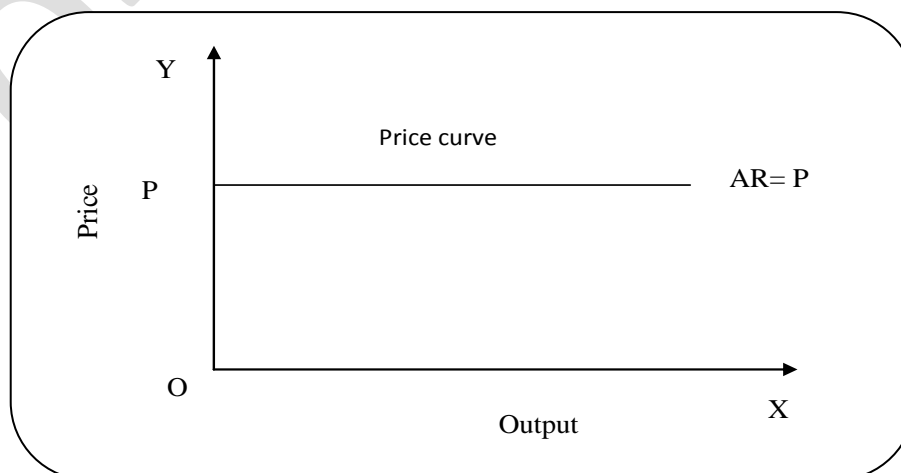
Under the perfect competition average revenue is equal to the market price. Therefore average revenue curve is horizontal straight line which is also called 'Price Line'. This price curve is also depicts the demand curve facing a firm. Here the demand curve is perfectly elastic. This means that a firm can sell as many units of the good as it wants to sell at price p.

3. Explain market supply curve with the help of diagram.

The market supply curve shows the aggregate output levels of firms to the corresponding different market prices. Considering a market having n number of firms, firm 1, firm 2, and firm 3 and so on, the sum of firms' supply is the market supply. It means market supply = (supply of firm 1 at price P) + (supply of firm 2 at price P) + - - - - - - - - - - - - - - - + (supply of firm n at price P). In other words, the market supply at price P is the summation of the supplies of individual firms at that price.

We can derive the market supply curve with the assumption of two firms in the market, firms produce differently with the different cost structures. Firm 1 will not produce anything if the market price is less than P_1 and firm 2 will not produce anything if the market price is less than P_2.
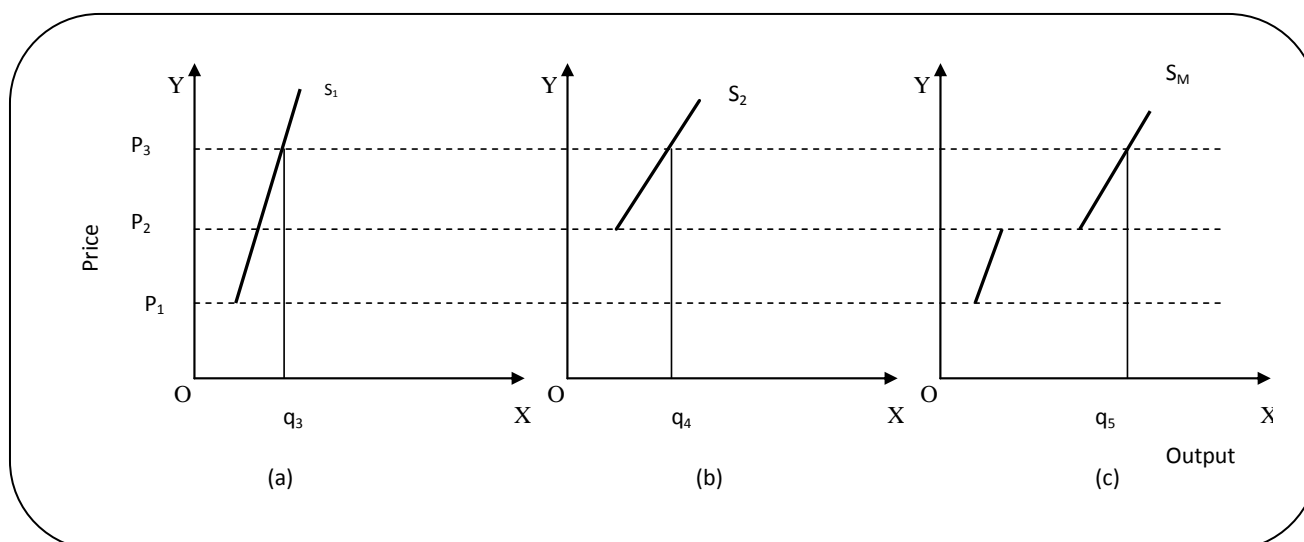
In the diagram (a) supply curve S_1 of firm 1 constructed, S_1 curve shows zero level of output when price is less than P_1. In the diagram (b) supply curve of firm 2 constructed, S_2 curve shows zero level of output when price is less than P_2. In the diagram (c) market supply curve S_m constructed, it shows zero level of output, when price is less than P_1. If price is greater than or equal to P_1 and less than P_2, S_m curve coincide with the supply curve of firm 1. When price is greater than or equal to P_2, the market supply curve S_m constructed with the two firms' supply curves. It means supply curve S_m can be obtained by taking a horizontal summation of S_1 and S_2 supply curves of two firms.

Market supply curve shifts if the number of firms changes. If the number of firms increases, market supply curve shifts rightward and if the number of firms decreases market supply curve shifts leftward.

VII. Assignment and project oriented questions. (Each question carries 5 marks).

1. Compute the Total Revenue, Marginal Revenue and Average Revenue schedules in the following table when market Price of each unit of good is ₹ 10.

Quantity sold	TR	MR	AR
0			
1			
2			
3			
4			
5			
6			

Ans :

Quantity sold	TR	MR	AR
0	0	-	-
1	10	10	10
2	20	10	10
3	30	10	10
4	40	10	10
5	50	10	10
6	60	10	10

(For Blind students only)

Explain the meaning of TR, MR and AR.

- ➢ **Total Revenue (TR):** Total Revenue is the multiplication of market price and the quantity of the good sold by a firm.

$$TR = P \times q$$

- ➢ **Marginal Revenue (MR):** Increase in total revenue for a unit increase in the firm's output is marginal revenue.

$$MR_n = TR_n - TR_{n-1} \qquad \text{or} \qquad MR = \frac{\Delta TR}{\Delta q}$$

- ➢ **Average Revenue (AR):** Total revenue per unit of output is Average revenue.

$$AR = \frac{TR}{q}$$

CHAPTER-5: MARKET EQUILIBRIUM

I. Choose the correct answer. (each question carries 1 mark)

1. In perfect competition buyers and sellers are.
    a) Price makers   b) Price takers
    c) Price analysts   d) None of the above

2. A situation where the plans of all consumers and firms in the market match.
    a) Inequilibrium situation   b) Equilibrium situation
    c) Maximisation situation   d) Partial equilibrium situation

3. As a result of increase in the number of firms there is an increase in supply, then supply curve
    a) Shifts towards left   b) Shifts towards right
    c) Shifts towards both sides   d) None of the above

4. The firms earn super normal profit as long as the price is greater than the minimum of
    a) Marginal cost   b) Total cost
    c) Average cost   d) Fixed cost

5. The government imposing upper limit on the price of goods and services is called
    a) Price ceiling   b) Selling price
    c) Price floor   d) None of the above

6. The government imposed lower limit on the price of goods and service is called
    a) Goods floor   b) Service floor
    c) Price floor   d) None of the above

Answers: **1) b,   2) b ,   3) b ,   4) c,   5) a,   6) c.**

II. Fill in the blanks. (Each question carries 1 mark)

1. In a perfectly competitive market, equilibrium occurs when market demand _____market supply.
2. If the supply curve shifts rightward and demand curve shifts leftward equilibrium price will be _____.
3. ____ is determined at the point where the demand for labour and supply of labour curves intersect.
4. In labour market _____ are the suppliers of labour.
5. Due to rightward shift in both demand and supply curves the equilibrium price remains _____.
6. It is assumed that, in a perfectly competitive market an_____ is at play.

Answers: **1) equals,   2) decreased,   3) Wage rate,   4) Households,**
                5) May increase, decrease or remain constant,   6) invisible hand.

III. Match the following. (each question carries 1 mark)

A	B
1. Adam smith	a) Attraction of new firms
2. Price ceiling	b) Operation of invisible hand
3. Market equilibrium	c) Lower limit on price
4. Possibility of super normal profit	d) Upper limit on price
5. Price floor	e) QD = QS

Answers: **1) b,   2) d,   3) e,   4) a,   5) c.**

IV.   Answer the following questions in 4 sentences. (Each question carries 2 marks)

1. Define equilibrium Price and Quantity.

The Price at which market supply equals to market demand is called equilibrium price. The quantity bought and sold at equilibrium price is called equilibrium quantity.

2. How price is determined, when fixed number of firms exists in perfect competition?

In the perfectly competitive market, in which fixed number of firms exists, the market price will be determined when demand and supply become equal. It means in a point where the market supply curve intersects market demand curve, the market price will be determined.

3. Write any two possible ways in which simultaneous shift of both demand and supply curve.

1) Both supply and demand curves shift rightward.

2) Both supply and demand curves shift leftward.

3) Supply curve shifts rightward and demand curve shifts leftward.

4) Supply curve shifts leftward and demand curve shifts rightward.

4. What is Marginal Revenue Product of Labour (MRP$_L$)?

Income (Product) for each extra unit of labour is Marginal Revenue Product of Labour (MRP$_L$). And by selling each extra unit of output, the additional earning of the firm is the Marginal Revenue of the unit.

5. Distinguish between excess demand and excess supply.

Excess demand	Excess supply
1. If at a price, market demand is greater than market supply, it is called excess demand	1. If at a price, market supply is greater than market demand, it is called excess supply
2. Due to insufficient supply consumers will be ready to pay more than equilibrium price.	2. Due to insufficient demand producers will be ready to sale less than equilibrium price.
3. Excess demand will tend to increase market price.	3. Excess supply will tend to decrease market price.
4. $q_D(p^*) > q_S(p^*)$	4. $q_D(p^*) < q_S(p^*)$

6. How wage is determined in the labour market?

The wage rate is determined at the intersection of the demand and supply curves of labour. It means, when demand for labour equals to supply of labour, the wage rate will be determined.

V.   Answer the following questions in 12 sentences. (Each question carries 4 marks)

1. What is the implication of free entry and exit of firm on market equilibrium? Briefly explain.

Market equilibrium is a situation where market demand equals to market supply. If free entry and exit exists in the market, no one firm earn supernormal profit and incurs loss. It means equilibrium price will be equal to the minimum average cost of the firms.

The existence of supernormal profit in the market will attract some new firms, entry of new firms in the market causes for the rightward shift of supply curve. It means market price will be decreased and supernormal profits will be wiped out eventually. Then firms will have no incentives to enter and some firms may exit, this may cause for increase in price and establishes normal profit.

If firms earn less than supernormal profit, some firms exit from the market and price will be increased and normal profit level will be reached, then no one firm wants to leave the market. So, with free entry and exit each firm will always earn normal profit, at the prevailing market price.

When price is greater than minimum average cost, firms earn super normal profit and firms want to enter the market at this price. If price is less than minimum average cost, firms incur loss and firms do not want to enter but try to exit from the market at this price. So, the market price will always be equal to the minimum average cost (P = Minimum AC) in the market.

2. Write a table to show the impact of simultaneous shifts on equilibrium.

Impact of simultaneous shifts on equilibrium shown in the following table.

Shift in demand	Shift in supply	Quantity	Price
Leftward	Leftward	Decreases	May increase, decrease or remain unchanged
Rightward	Rightward	Increases	May increase, decrease or remain unchanged
Leftward	Rightward	May increase, decrease or remain unchanged	Decreases
Rightward	Leftward	May increase, decrease or remain unchanged	Increases

3. Write a note on price ceiling.

The government imposed upper limit on the price of a good or service is called price ceiling. Price ceiling is generally imposed on necessary items like Wheat, Rice, Kerosene, Sugar and it is fixed blow the market-determined price, Since at the market-determined price, some section of the population will not be able to afford these goods.
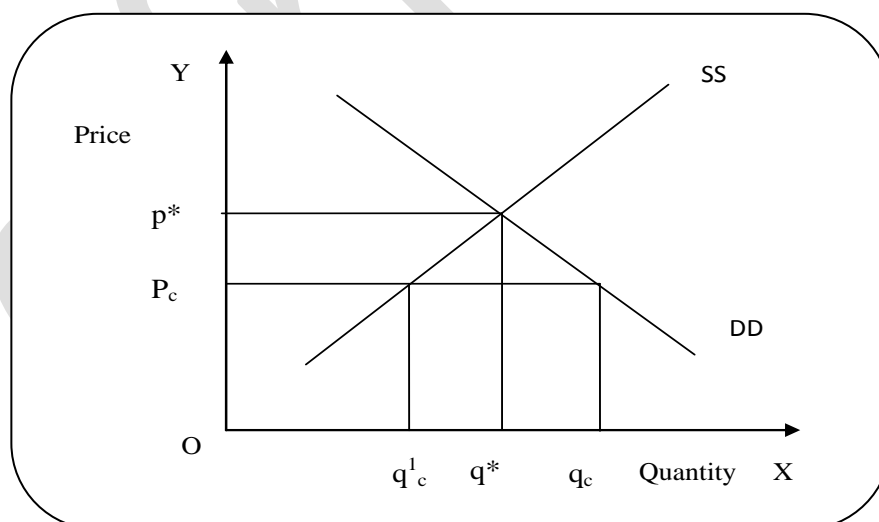
In the diagram demand curve DD and supply curve SS mutually intersected and equilibrium price p^* and equilibrium quantity q^* determined. When government imposes price ceiling at P_C, which is lower than equilibrium price level, demand increased to q_C, but supply decreased to q_C^1, this one causes for shortage of the good and to distribute it to everyone ration coupons are issued to consumers. So that, everyone can buy stipulated amount of good by ration shops, which are also called fair price shops.

Adverse consequences of price ceiling

a) Each consumer has to stand in long queues to buy the good, from ration shops.

b) This may result in the creation of black market.

4. **Write a note on price floor.**

The government imposed lower limit on the price of a good or service is called Price floor. Most well-known examples of imposition of price floor are agricultural price support programmes and the Minimum Wage Legislation. Through an agricultural price support programme the government imposed a lower limit on the purchase for some of the agricultural goods and floor is normally set at a level higher than the market-determined price for these goods. Similarly, through the Minimum Wage Legislation, the government ensures that the wage rate of the labourers does not fall below a particular level and here also the minimum wage rate is set above the equilibrium wage rate.
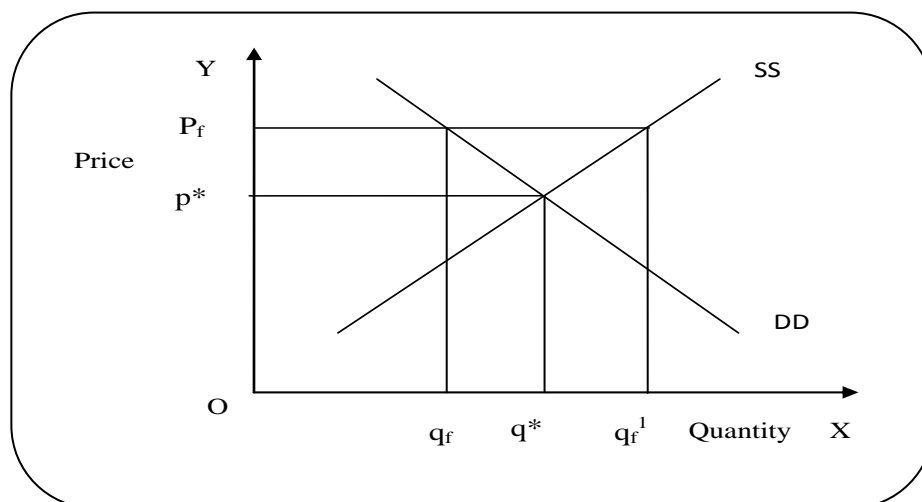
In the diagram demand curve DD and supply curve SS mutually intersected and equilibrium price p^* and equilibrium quantity q^* determined. When government imposes a price floor at P_f which is higher than the market determined equilibrium price, supply increased to q_f^1 and demand decreased to q_f. In the case of agricultural support, to prevent price from falling because of excess supply, government needs to buy the surplus at the predetermined price.
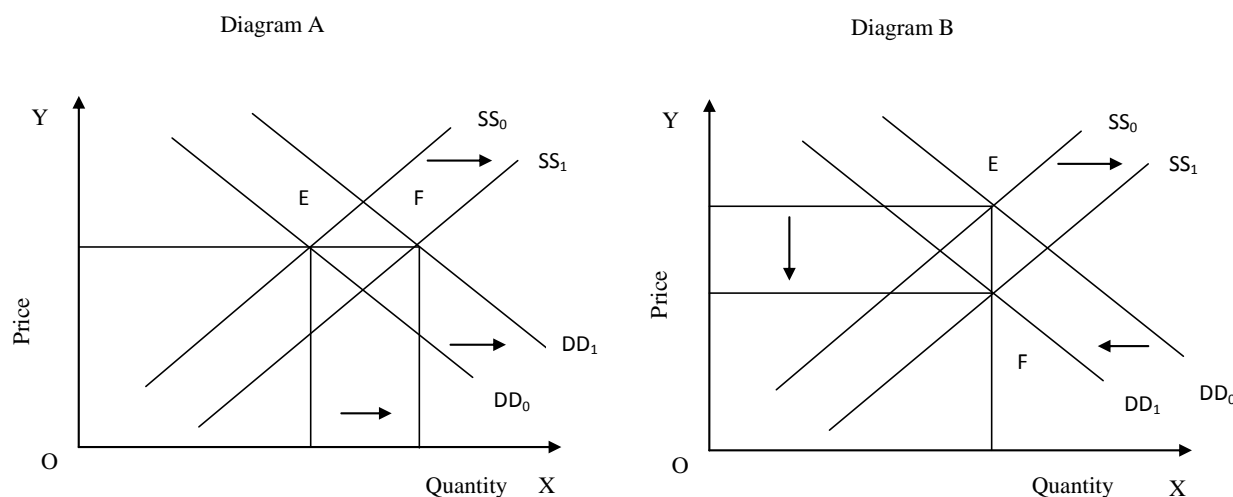
VI. **Answer the following questions in 20 sentences (each question carries 6 marks)**

1. **Explain the simultaneous shift of demand and supply curves in perfect competition with the help of diagrams.**

The simultaneous shifts in demand and supply curves can happen in four types

1) Both supply and demand curves shift rightward.

2) Both supply and demand curves shift leftward.

3) Supply curve shifts rightward and demand curve shifts leftward.

4) Supply curve shifts leftward and demand curve shifts rightward.

Shift in demand	Shift in supply	Quantity	Price
Leftward	Leftward	Decreases	May increase, decrease or remain unchanged
Rightward	Rightward	Increases	May increase, decrease or remain unchanged
Leftward	Rightward	May increase, decrease or remain unchanged	Decreases
Rightward	Leftward	May increase, decrease or remain unchanged	Increases

Diagram A

Diagram B

In the diagram A, rightward shift of both Demand and Supply curves, the equilibrium quantity increased and the proportional shift of both Demand and Supply curves caused for the no change in the equilibrium price. In the diagram B, rightward shift of Supply curve and leftward shift of Demand curve, caused for the decrease in equilibrium price, and the proportional shift of both Demand and Supply curves caused for the no change in the equilibrium quantity.

2. Explain the market equilibrium with the fixed number of firms with the help of diagram.

Market equilibrium is a situation where market demand equals to the market supply. Market equilibrium with the fixed number of firms explained with the help of diagram as follows.
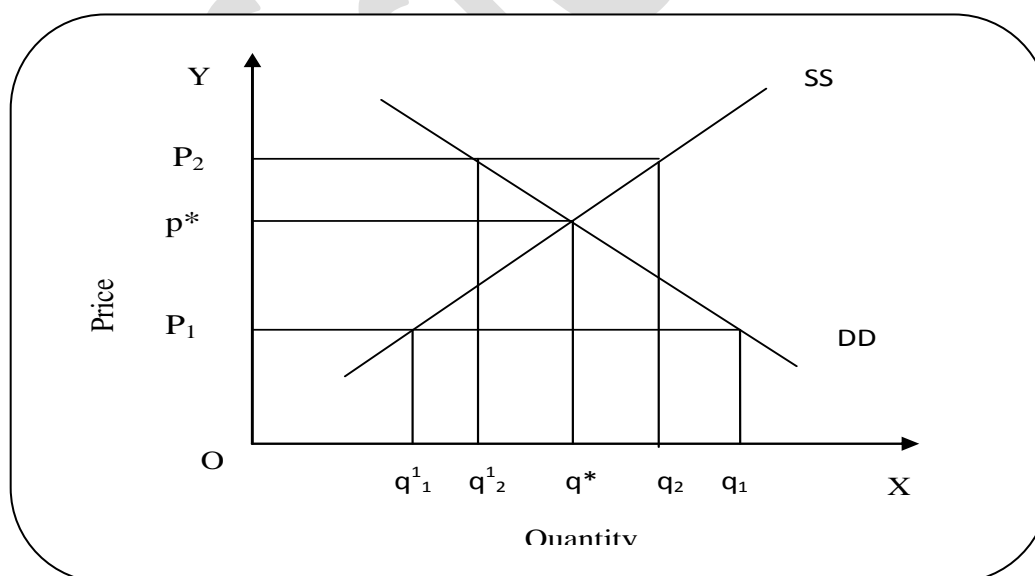
In the diagram the curve DD is market demand curve and the curve SS is market supply curve, diagrammatically where market demand curve intersects market supply curve the equilibrium price P^* and equilibrium quantity q^* determined, any other point, except equilibrium price, causes for the excess supply or excess demand.

If price decreased to P_1 quantity of demand increased to q_1, and quantity of supply decreased to q_1^1, so, excess demand $q_1^1 q_1$ exists in the market. And if price increases to P_2, quantity of demand decreased to q_2^1 and quantity of supply increased to q_2, so, excess supply $q_2^1 q_2$ exists in the market. Therefore in the fixed number of firms existing market any other price, except equilibrium price, causes for excess demand and excess supply in the market.

3. **Suppose the demand and supply curves of wheat are given by $q^D = 200 - P$ and $q^S = 120 + P$.**
   a) Find the equilibrium price.
   b) Find the equilibrium quantity of demand and supply.
   c) Find the quantity of demand and supply when P > equilibrium price.
   d) Find the quantity of demand and supply when P < equilibrium price.

a) <u>Equilibrium price</u>

$$q^D = q^S$$
$$200 - P = 120 + P$$
$$200 - 120 = P + P$$
$$2P = 80$$
$$P = 80/2 = 40$$

Equilibrium price is ₹ 40

b) <u>Equilibrium quantity of Demand and Supply.</u>
   <u>(When price is equal to Equilibrium Price. i.e. P = ₹40)</u>

Equilibrium quantity of Demand: $q^D = 200 - P$
                                   $= 200 - 40$
                                   $q^D = 160$

Equilibrium quantity of Supply: $q^S = 120 + P$
                                   $= 120 + 40$
                                   $q^S = 160$

Quantity of demand and quantity of supply are equal ($q^D = q^S$) at Equilibrium Price.

c) <u>Quantity of demand and quantity of supply when Price is greater than equilibrium price.</u>
   <u>(P > Equilibrium Price. If Price is ₹ 50)</u>

$q^D = 200 - P$ $q^S = 120 + P$
$= 200 - 50$ $= 120 + 50$
$q^D = 150$ $q^S = 170$

When price is greater than equilibrium price (P = ₹ 50), quantity of demand decreased to 150 and quantity of supply increased to 170.

d) <u>Quantity of demand and quantity of supply when Price is less than equilibrium price.</u>
   <u>(P < Equilibrium Price. If Price is ₹ 30)</u>

$q^D = 200 - P$ $q^S = 120 + P$
$= 200 - 30$ $= 120 + 30$
$q^D = 170$ $q^S = 150$

When price is less than equilibrium price (P = ₹ 30), quantity of demand increased to 170 and quantity of supply decreased to 150.

Situation	Price	Demand	Supply
P = Equilibrium Price	40	160	160
P > Equilibrium Price	50	150	170
P < Equilibrium Price	30	170	150

PART-2 : INTRODUCTORY MACRO ECONOMICS
CHAPTER-7: INTRODUCTION

I.   **Choose the correct answer. (each question carries 1mark)**

1.   **The individuals or institutions which take economic decisions are.**
    a) Economic Variables   b) Economists
    c) Economic Agents   d) None of the above

2.   **In 1936 British economist J.M.Keynes published his celebrated book**
    a) Wealth of nations   b) General theory of employment interest and money
    c) Theory of Interest   d) Theory of Employment

3.   **All the labourers who are ready to work will find employment and all the factories will be working at their full capacity, this school of thought is known as**
    a) Modern thought   b) Contemporary thought
    c) Classical thought   d) None of the above

4.   **The year of Great Depression**
    a) 1920   b) 1889   c) 1929   d) 2018

5.   **In a capitalist country production activities are mainly carried out by**
    a) Private enterprises   b) Government authority
    c) Planning authority   d) None of the above

    Answers: 1) c,   2) b,   3) c,   4) c,   5) a.

II.   **Fill in the blanks. (Each question carries 1 mark)**

1.   _____ tries to address situations facing the economy as a whole.
2.   A part of the revenue is paid out as _____ for the service rendered by land.
3.   The domestic country may sell goods to the rest of the world. These are called _____.
4.   _____ will be called as firms.
5.   _____ policies are pursued by the state itself or statutory bodies like the RBI, SEBI etc.

   Answers: 1) Macroeconomics, 2) Rent, 3) Export, 4) Production Units, 5) Macro Economic.

IV. **Answer the following questions in 4 sentences. (Each question carries 2 marks)**

1.   **What are the features of capitalistic economy?**
    a)   There is private ownership of means of production.
    b)   Production takes place for selling the output in the market.
    c)   There is sale and purchase of labour.
    d)   Profit motive.

2.   **Name and write the meaning of two kinds of trade in external sector.**
    There are two types of trade in external sector,
    a)   Exports: Selling goods to the rest of the world is called exports.
    b)   Imports: Buying goods from the rest of the world is called imports.

3.   **Who are the macroeconomic decision makers?**
    a) Government   b) Reserve bank of India (RBI)
    c) Security exchange board of India (SEBI)
    d) Other institutions established under the law or constitution.

V. **Answer the following questions in 12 sentences. (Each question carries 4 marks)**

1. Briefly explain in what way Macro Economics is different from Micro Economics.

   Microeconomics studies individual economic agents. Macroeconomics studies the aggregate production, employment and aggregate price, etc.

➢   Micro economics did not deal with how output levels of all the goods and services in the economy have a tendency to move together. But macroeconomics deals with the output levels of the

goods and services in the economy have to move together. For example, increase in output of food grains increases the industrial output.

➢   In micro economics decision makers are individuals and firms. But in macroeconomics decision makers are the state itself or statutory bodies like RBI, SEBI etc.

➢   In micro economics, economic agents try to maximise their individual satisfaction, welfare and profit. But in macroeconomics agents who are statutory bodies, will not have individual goals but they will have many public goals to pursue as defined by law or the constitution of India. These goals are not like individual economic goals, maximising their private profit or welfare. They are pursued for the welfare of country and its people as whole.

2. **Explain the working of the economy of a capitalist country**.

Where the economic activities of a nation carried out by the capitalist firms is called capitalist economy.

Characteristics of capitalist economy
   a)   Private ownership of means of production.
   b)   Production takes place for selling the output in the market.
   c)   There is a sale and purchase of labour in the market.
   d)   Profit motive.
   e)   There is no government intervention.

Capitalist enterprise has one or several entrepreneurs. They may themselves supply the capital needed to run the enterprise, or they may borrow the capital. Capitalist produced goods by using the factors of production like land, labour, capital. After producing output entrepreneur sells the product in the market and earn money which is called revenue. After remunerations paid to the factors of production, rent for land, interest for capital and wage for labour, the rest of the remuneration is called profit.

Profits are often used by the producers in the next period to buy new machinery or to build new factories. So that production can be expanded. The expanses which raise productive capacity are examples of investment expenditure. Capitalist motive for producing goods and services is to sell them in the market and earn profits. In this process capitalist undertake risk and uncertainties.

Totally the economy, whereas private ownership of means of production exists, production takes place for selling the output in the market with profit motive is called capitalist economy.

3. Explain the role of the Government (state) and household sector in both developed and developing countries.

In both the developed and developing countries, apart from the private capitalist sector there are the Government and household sectors.

Role of the government: The role of the state includes forming laws, enforcing them and delivering justice. The role of the government is mentioned below.
   a) Forming law and enforcing them.
   b) Function of delivering justice.
   c) Imposition of tax to achieve equality.
   d) Spending money on building public infrastructure like school, health, etc.
   e) Involve in production.
   f) Control and direction of economic activity of the nation.

Role of the household sector: The sector where a single individual (group) who takes decisions relating to his own consumption is called household sector. The role of the household sector mentioned below.
   a)   Takes decisions relating to individuals consumption.
   b)   Household sector also saves.
   c)   House hold sector pay taxes.
   d)   Supply of factors of production to the firms.
   e)   Earns remuneration like rent, wage, interest and profit.
   f)   The people of Household sector may be the owners of the firms and earn profits.
   g)   Creating the demand for goods produced by firms.
   h)   People provide services to government department and earn salary.

CHAPTER-8: NATIONAL INCOME ACCOUNTING

I.   Choose the correct answer. (each question carries 1mark)

1. The study of National Income is related to
   a) Micro economics   b) Macro economics
   c) Both Micro & Macro   d) None of the above

2. NNP ≡ GNP -
   a) Deduction   b) Depreciation
   c) Investment   d) None of the above

3. The value of GDP at the current prevailing prices is
   a) Real GDP   b) GDP at Factor Cost
   c) Nominal GDP   d) NDP

4. By deducting undistributed profit from national income, we get
   a) Personal Disposable Income   b) Personal Income
   c) Private Income   d) Subsidies

5. Measuring the sum total of all factor payments will be called
   a) Product method   b) Expenditure method
   c) Income method   d) None of the above

Answers: 1) b,   2) b,   3) c,   4) b,   5) c.

II.   Fill in the blanks. (Each question carries 1 mark)

1. _____ are defined at a particular point of time.
2. _____ goods will not pass through any more stages of production.
3. _____ is an annual allowance for wear and tear of capital good.
4. _____ is a stock variable.
5. Pollution is an example for _____externalities.
6. The net contribution made by a firm is called its _____.

Answers: 1) Stock,   2) Final,   3) Depreciation,
4) Inventory, 5) Negative, 6) Value Added.

III.   Match the following. (each question carries 1 mark)

A	B
1. Labour	a) Non-Monetary exchange
2. GDP	b) Personal Disposable Income
3. Inventory	c) Gross Domestic Product
4. PDI	d) Stock variable
5. Domestic service	e) Wages

Answers: 1) e,   2) c,   3) d,   4) b,   5) a.

V. Answer the following questions in 4 sentences. (Each question carries 2 marks)

1.   What are the four factors of production? Mention their rewards.

Factors of production	Rewards/remuneration
1 Land	Rent
2 Labour	Wage
3 Capital	Interest
4 Organization/Entrepreneurship	Profit

2. Distinguish between stock and flow. With the example.

SN	Stock	Flow
1	Stock is defined at a particular point of time.	Flow is defined over a period of time.
2	Example: The water in a tank at a particular point of time.	Example: The amount of water which is flowing in to the tank from the tap per minute
3	Example: Buildings, Machines. etc	Examples: Income, Production, Profit. etc.
4	Stock is a static concept.	Flow is a Dynamic concept.

3. What is the difference between consumer goods and capital goods?

SN	Consumer Goods	Capital Goods
1	Used for consumption purpose.	Used for production purpose.
2	Ex: Food, Cloth, Television, etc.	Ex: Machines, Buildings, Tools, etc.
3	Pass out the stages of production.	Pass through more stages of Production.
4	Did not undergo wear and tear.	Undergo wear and tear.

4. Mention 3 methods of measuring GDP (National income).

   1. Production Method/Value Added Method   2. Expenditure method. 3. Income method

5. What do you mean by externalities? Mention its two types.

     Externalities refer to the benefits or harms, a firm or an individual causes to another, for which they are not paid or penalised. There are two types of externalities 1. Positive externalities 2.Nagative externalities

6. Write the equation of GDP$_{MP}$ and GDP$_{FC}$

$$GDP_{MP} = C+I+G+X-M$$
$$GDP_{FC} = GDP_{MP} - NIT$$

7. Write the difference between nominal GDP and real GDP.

     Nominal GDP:- GDP calculated/evaluated at current prices is called nominal GDP
     Real GDP:- GDP calculated/evaluated at constant prices is called real GDP

VI. Answer the following questions in 12 sentences. (Each question carries 4 marks)

1.   Write a short note on the concept of final good.

     A good or an item that is meant for final use and will not pass through any more stages of production or transformations is called a final good. For example, Computer, Mobile. etc.

     Each producer of commodities intends to sell her output to consumers. The consumer may, in turn, be an individual or an enterprise and the good or service purchased by that entity might be for final use or for use in further production. When it is used in further production it often loses its characteristic as that specific good and is transformed through a productive process into another good.

A farmer producing cotton sells into a spinning mill where the row cotton undergoes transformation to yarn. The yarn sold to a textile mill where it is (yarn) transformed into cloth, the cloth is, in turn, transformed through another productive process into an article of final good. Once final good has been sold it passes out of the active economic flow. It will not undergo any further transformation at the hands of any producer. In fact many such final goods are transformed during their consumption.

The tea leaves purchased by the consumer used to make drinkable tea, which is consumed. But preparing tea at home not economic activity even though tea is a final good. Tea prepared at restaurant is economic activity. Tea leaves counted as inputs to which economic value addition can take place. Thus tea leave not in the nature of the good but in the economic nature of its use that a good becomes a final good.

2. **Explain the circular flow of income of an economy**.

Circular flow of income explains how the income circulated between households and firms in the economy. In the simplified economy the circular flow of income explained with the help of a diagram and with the assumptions of there is no government, absence of external trade and no savings.
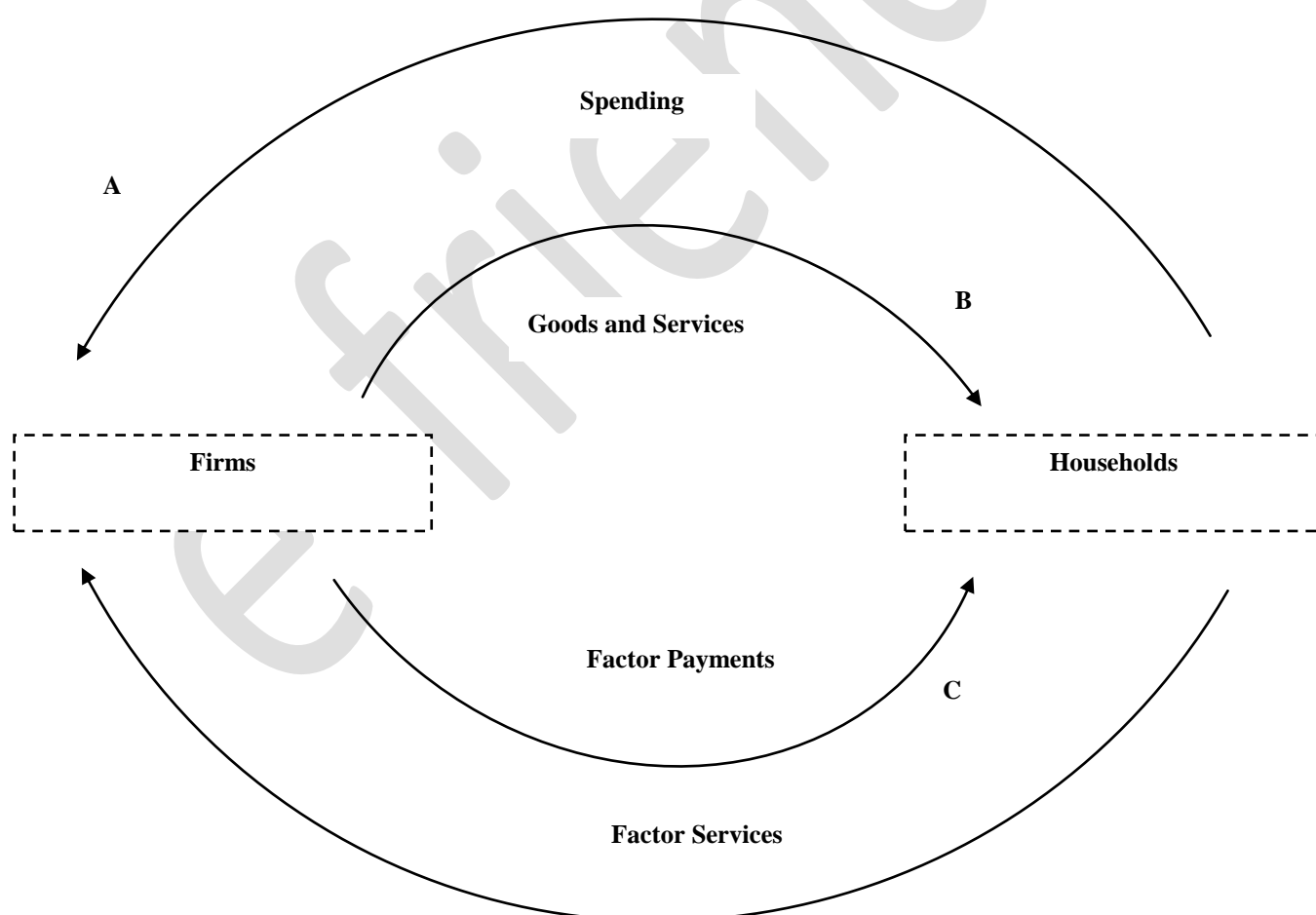
In the diagram the uppermost arrows represent goods and services market. The lowermost arrows represent factors of production market.

The lower most arrow, going from the households to the firms, represents the services (land, labour, capital, entrepreneurship) that the households are rendering to the firms. The arrow above this going from the firms to the households, represents the payments (rent, wage, interest, profit) made by the firms to the households for the services provided by them.

The upper most arrow, going from the households to the firms, represents the spending of households undertake to buy goods and services produced by firms. The second arrow going from the firms to the households, it shows goods and services which are flowing from the firms to households. National income can be calculated with the help of circular flow of income as follows. Line A measures aggregate spending of an economy (Expenditure Method), Line B measures aggregate value of final goods and services of an economy (Product Method) and line C measures aggregate of factors payments of an economy (Income Method).

3. Write a note on externalities.

Externalities refer to the benefits or harms, a firm or an individual causes to another, for which they are not paid or penalised. There are two types of Externalities 1) Positive Externalities 2) Negative Externalities.

1. Positive Externalities: Positive externalities refer to the benefits a firm or an individual causes to another, for which they are not paid. Externalities do not have any market in which they can be bought and sold. For example, suppose there is an oil refinery, which causes to increase in employments, land prices, constructing new roads, these are the Positive Externalities. In such a case if we take GDP as a measure of welfare of the economy, we shall be underestimating the actual welfare of the economy.

2. Negative Externalities: Negative Externalities refer to the harms a firm or an individual causes to another, which they are not bear any cost. For example, carrying out the production the refinery may also be polluting the nearby river. Pollution may causes harm to the people who use the water of the river, may also kill fish or other organisms these are negative externalities. In such a case if we take GDP as a measure of welfare of the economy we shall be overestimating the actual welfare of the economy.

4. Illustrate unplanned Accumulation and Decumulation of Inventories with an example.

The stock of unsold finished goods or semi-finished goods or raw materials which a firm carries from one year to the next is called inventory. Change in inventories may be Planned or Unplanned.

a) Unplanned accumulation of inventories: Where there is an unexpected fall in sales, the firm will have unsold stock of goods which is not anticipated, it is called unplanned accumulation of inventories. For example: The firm starts the year with an inventory of 100 shirts. During the coming year it expects to sell 1000 shirts, Hence, it produces 1000 shirts. However during the year, the sales of the shirts turn out to 600 shirts only, remain 400 shirts enter to the stock. So, the present year's inventory ends with 500 shirts (400+100=500), this type of inventory is an example of unplanned accumulation of Inventory.

b) Unplanned decumulation of inventories: Where there is an unexpected rise in the sales, the firm will have a fall in stock of goods which is not anticipated, it is called unplanned decumulation of inventories. For example: A firm starts the year with an inventory of 100 shirts. During the coming year it expects to sell of 1000 shirts, it produces 1000 shirts. However during the year sales of shirts unexpectedly rise to 1050. The firm will have to sell 50 shirts from the stock and the current inventory reduces to 50 shirts (100-50=50), this type of inventory is an example of unplanned decumulation of inventory.

5. Explain the example of planed Accumulation and Decumulation of inventories.

The stock of unsold finished goods or semi-finished goods or raw materials which a firm carries from one year to the next is called inventory. Change in inventories may be planned or unplanned.

a) Planned accumulation of inventories: Where there is expected fall in the sales, the firm will have unsold stock of goods which is anticipated, it is called planned accumulation of inventories. For example, the firm wants to raise the inventories from 100 shirts to 200 shirts during the year. Expecting sales of 1000 shirts during the year, the firm produces 1100 shirts. If the firm sales 1000 shirts exactly, then the firm indeed ends up with a rise of inventories to 200 shirts (100+100=200), this type of inventory is an example of planned accumulation of inventories.

b) Planned decumulation of inventories: Where there is an expected rise in the sales, the firm will have fall in the stock of goods which is anticipated, it is called unplanned decumalation of inventories. For example, the firm wants to reduce the inventories from 100 to 25. Expecting sales of 1000 shirts during the year, the firm produces 925 shirts (1000-75=925). If the firm indeed sales 1000 shirts, as expected by the firm, the inventory reduces to 25 shirts, this type of inventory is an example of planned decumulation of inventory.

VII. Answer the following questions in 20 sentences. (Each question carries 6 marks)

1. Explain the macroeconomic identities.

Some macroeconomic identities (different concepts of NI) explained as below

1. Gross Domestic Product (GDP): GDP is the market value of all final goods and services produced within the domestic economy, measured in a year.

$$GDP = C + I + G + X - M$$

C- Consumption expenditure. I-Private investment. G-Government investment. X-Exports. M-Imports.

2. Gross National Product (GNP): The aggregate money value of final goods and services produced by a country in a year including net factor income from abroad is called Gross National Product.

$$GNP = GDP + NFIA$$

NFIA= net factor income from abroad.

3. Net National Product (NNP): If we deduct depreciation cost from the GNP we get Net National Product.

$$NNP = GNP - Depreciation$$

4. Net National Product at factor cost (NNP$_{FC}$): If we deduct the indirect tax and add the subsidies from the net national product at market price we obtain the Net National Product at factor cost.

$$NNP_{FC} = NNP_{MP} - NIT$$ Or $$NNP_{FC} = NNP_{MP} - \text{Indirect tax} + \text{subsidies}$$

NNP$_{MP}$ – Net National Product at market prices. NIT- Net Indirect Tax (Indirect tax – subsidies).

5. Personal income (PI): Personal income is the part of the national income which is received by households during a year.

$$PI = NI - UP - NIH - CT + TrH$$

NI - National Income. UP - Undistributed Profits. NIH - Net Interest Payments from Households. CT - Corporate taxes. TrH - Transfer Payments to households.

6. Personal disposable income (PDI): If we deduct the personal tax and non-tax payments in the personal income we get Personal Disposable Income.

$$PDI = PI - PTP - NTP$$

PTP - Personal Tax Payments. NTP - Non Tax Payments.

2. Briefly explain the expenditure method of measuring GDP.

There are three ways of calculating the GDP. These are a) Production method. b) Expenditure method. c) Income method.

Measuring GDP in Expenditure method: If we measure GDP by considering the total final expenditure incurred by a country in a year is called expenditure method of measuring national income. Calculating GDP under expenditure method looks at the demand side of the product. In this method

calculating the GDP we considered the following points. Firm i can make the final expenditure on the following accounts.

a) The final consumption expenditure on the goods and services produced by the firm i denoted by c_i. Mostly, households undertake consumption expenditure and there will be exception for consumption expenditure incurred by firms to treat their guests or their employees.

b) The final investment expenditure, I_i, incurred by other firms on the capital goods produced by firm i, observe that unlike the expenditure on the intermediate goods which is not included in the calculation of GDP, but expenditure on investments is included. The reason is that investment goods remain with the firm, whereas intermediate goods are consumed in the process of production.

c) The expenditure that the government makes on the final goods and services produced by firm i, we shall denote this by G_i. We may point out that the final expenditure incurred by the government includes both the consumption and investment expenditure.

d) The export revenues that firm i earns by selling its goods and services abroad. This will be denoted by X_i.

Thus the sum total of the Revenues that the firm i earns is given by $RV_i \equiv$ sum of final consumption expenditure + investment expenditure + government expenditure + exports expenditure.

$$RV_i \equiv C_i + I_i + G_i + X_i$$

If there are N firms then summing over N firms we get

$$\sum_{i=1}^{N} RV_i \equiv \text{sum of final consumption expenditure + investment expenditure} \\ \text{+ government expenditure + exports expenditure.}$$

$$\sum_{i=1}^{N} RV_i \equiv \sum_{i=1}^{N} C_i + \sum_{i=1}^{N} I_i + \sum_{I=1}^{N} G_i + \sum_{I=1}^{N} X_i$$

If we deduct Import expenditure of consumption goods (Cm) in C, foreign capital investment expenditure (Im) in I and govt expenditure on foreign firms (Gm) in G, we can write it as follows.

$$\sum_{i=1}^{N} RV_i \equiv C - C_m + I - I_m + G - G_m + \sum_{I=1}^{N} X_i$$

$$\sum_{i=1}^{N} RV_i \equiv C + I + G + \sum_{i=1}^{N} X - (C_m + I_m + G_m)$$

$$\sum_{i=1}^{N} RV_i \equiv C + I + G + X - M$$

Where $M = C_m + I_m + G_m$. That is the aggregate imports expenditure incurred by the economy. In this type GDP can be calculated by expenditure method.

3. Explain a numerical example to show that all three methods of estimating GDP gives us the same answer.

There are three methods of estimating the GDP a) Production method b) Expenditure method and c) Income method. All these three methods of estimating GDP give us the same answer, it is explained with an assumption which is as follows. There are two firms A and B, A uses no raw material and produces cotton worth Rs 50. A sells its cotton to firm B, who uses it to produce cloth. B sells the cloth produced to consumer for Rs 200.

a) **GDP in the phase of production or the value added method.**

If we deduct the value of intermediate goods in the value of goods that sold, we get value added.

$$\text{Value added} = \text{sales} - \text{intermediate good}$$
$$\text{Thus } VA_A = 50 - 0 = 50$$
$$VA_B = 200 - 50 = 150$$

Distribution of GDP for firms A and B

	Firm A	Firm B
Sales	50	200
Intermediate consumption	0	50
Value added	50	150

$$GDP = VA_A + VA_B$$
$$= 50 + 150$$
$$GDP = 200$$

b) GDP in the phase of disposition or the expenditure method.

GDP is equal to the sum of final expenditure or expenditures on goods and services for end use. In the above case, final expenditure is expenditures of consumers on cloth. Therefore,

GDP = expenditure on goods and services for end use.

GDP = 200.

c) GDP in phase of distribution or income method.

Profit is the remaining amount of revenue after deducting the paid wages. Firm A received Rs 50 and the firm gives Rs 20 to the workers as wages and keeps the remaining Rs 30 as its profits. Similarly, B gives Rs 60 as wages and keeps Rs 90 as profits.

Distribution of factor incomes of firms A and B

	Firm A	Firm B
Wages	20	60
Profits	30	90

Above table shows how the sum of income earned by factors is equals to GDP.

$$GDP = \text{Total wage} + \text{Total profit.}$$
$$= 80 + 120$$
$$GDP = 200$$

Like this all three methods explained above give the same results.

4. **Write down the limitations of using GDP as an index of welfare of a coun**try.

There are three reasons to support that GDP of a country cannot be taken as an index of the welfare of the people of that country.

a) Distribution of GDP: If the GDP of the country is rising, the welfare may not rise as a consequence. This is because the rise in GDP may be concentrated in the hands of very few individuals or firms. In such a case the welfare of the entire country cannot be said to have increased. For example, suppose in year 2000, an imaginary country had 100 individuals each earning Rs 10. Therefore GDP of the country was Rs 1000. In 2001 GDP increased to 1010, there 90 individuals earning Rs 9 each and 10 individuals earning Rs 20 each [(90 x 9) + (10 x 20) = 1010].

According the above example increased GDP, concentrated in the hands of very few individuals. If we relate welfare improvements in the country to the percentage of people who are better off, then surely GDP is not a good index.

b) Non–monetary exchanges: Many activity in an economy are not evaluated in monetary terms. For example, the domestic services women perform at exchanges which take place in the informal sector without the help of money are called barter exchange. In barter exchanges, goods are directly exchanged against each other. But since money is not being used here, these exchanges are not registered as part of

economic activity. These activities are not counted in the GDP, this is the case of underestimation of GDP. Such type of GDP not give us a clear indication of the productive activity and well-being of a country.

c) Externalities: Externalities refer to the benefits or harms a firm or an individual cause to another for which they are not paid or penalized. There are two types of externalities 1) Positive externalities 2) Negative externalities.

1. Positive externalities: Positive Externalities refers to the benefits a firm or an individual causes to another, for which they are not paid. Externalities do not have any market in which they can be bought and sold. Example: suppose there is an oil refinery, which causes to increasing employments, land prices, constructing new roads these are the positive externalities. In such a case if we take GDP as a measure of welfare of the economy we will be underestimating the actual welfare of the economy.

2. Negative externalities: Negative Externalities refers to the harms a firm or an individual causes to another, for which they are not penalised. For example, while carrying out the production the refinery may also be polluting the nearby river. Pollution may causes harm to the people who use the water of the river, may also kill fish these are negative externalities. In such a case if we take GDP as a measure of welfare of the economy we will be overestimating the actual welfare of the economy.

Due to Unequal distribution of GDP, Non-Monetary exchanges and Externalities, taking the GDP as an index of the welfare of the country is not correct.

CHAPTER-9: MONEY AND BANKING

I. Choose the correct answer. (each question carries 1mark)

1. The main function of Money is
    a) Saving   b) Expenditure
    c) Medium of exchange   d) Investment

2. The Bank which acts as Monetary authority of India.
    a) RBI   b) NABARD
    c) RRB   d) IDBI

3. The Banks which are a part of the money creating system of the economy are
    a) Bankers   b) Commercial Banks
    c) RBI   d) None of the above

4. The rate at which the RBI lends money to commercial banks against securities
    a) Bank rate   b) Repo rate
    c) Reverse Repo rate   d) None of the above

5. The important tool by which RBI influences money supply is
    a) Open Market Operation   b) Closed Market Operation
    c) Money Operation   d) None of the above

Answers: 1) c, 2) a, 3) b, 4) b, 5) a.

II. Fill in the blanks. (Each question carries 1 mark)

1. Economic exchanges without the use of money are referred to as _____.
2. _____ is the only institution which can issue currency in India.
3. _____ issues coins in India.
4. The principal motive for holding money is to carry out _____.
5. M_1 and M_2 are known as _____.

Answers: 1) Barter system, 2) RBI, 3) Government of India,
4) Transactions, 5) Narrow Money.

III. Match the following. (each question carries 1 mark)

A	B
1. SLR	a) Government of India
2. Circulation of coin	b) Statutory Liquidity Ratio
3. Money	c) Broad Money
4. M_3 and M_4	d) Repo
5. Repurchase agreement	e) Medium of exchange

Answers: 1) b, 2) a, 3) e, 4) c, 5) d.

V. Answer the following questions in 4 sentences. (Each question carries 2 marks)
1. Mention any two functions of money.
    a) Medium of exchange, b) Measure of value, c) Store of value, d) Transfer of value.
2. Give the meaning of CRR and SLR.
  CRR: Certain percentage of deposits which every bank must keep as reserves in RBI is called CRR.
  SLR: Certain percentage of deposits which every bank must keep as reserve with itself is called SLR.

3. **State the credit control instruments of RBI.**

Quantitative instruments	Qualitative instruments
a) Bank rate.	a) Moral suasion.
b) Cash reserve ratio.	b) Margin requirements.
c) Open market operation.	

4. **Mention the two motives of demand for money.**

   a) The transaction motive.   b) The speculative motive.

5. **How does bank rate influence money supply?**

   When RBI increases the bank rate, loans taken by commercial banks become more expensive and this reduces the reserves held by commercial banks and hence decreases money supply. In opposite way a fall in the bank rate can increase the money supply.

6. **What role of RBI is known as 'Lender of Last Resort'?**

   When commercial banks are not able to get funds from any sources, finally RBI will be ready to lend to banks at all times, due to this, RBI is said to be the 'Lender of the lost Resort'.

VI. Answer the following questions in 12 sentences. (Each question carries 4 marks)

   1. 'Money acts as a convenient unit of account' explain this sentence with the example.

   For smoothen the transactions an intermediate good is necessary which is acceptable to both parties is called money. Let us see how the money acts as a convenient unit of account as follows.

   The value of all goods and services can be expressed in monetary units. When we say that the value of a certain wristwatch is Rs 500 we mean that the wristwatch can be exchanged for 500 units of money, where a unit of money is rupee in this case. If the price of a pencil is Rs 2 and that of a pen is Rs 10 we can calculate the relative price of a pen with respect to a pencil, viz. a pen is worth 10/2=5 pencils. The same notion can be used to calculate the value of money itself with respect to other commodities. In the above example, a rupee is worth 1/2=0.5 pencil or 1/10=0.1 pen. Thus if prices of all commodities increase in terms of money i.e., there is a general increase in the price level, the value of money in terms of any commodity must have decreased–in the sense that a unit of money can now purchase less of any commodity. We call it deterioration in the purchasing power of money.

2. **Briefly explain the functions of RBI.**

   Central bank is a very important institution in a modern economy. RBI is the central bank of India, it was established in 1935. The headquarters of RBI is in Mumbai, and the Present Governor is Shaktikantha Das. Functions of RBI are follows.

   a) Issuing the currency: RBI has the monopoly in issuing the currency notes in India. However coins are being issued by the government of India. RBI has the authority of print different denomination of notes according to the nation's need.

   b) Banker to the government: RBI acts as a banker to the government. RBI receives and makes payments on behalf of the government. RBI acts as representative of government and also gives advice to the government.

   c) Control of money supply: The RBI controls the money supply in the economy in various ways. For controlling of money supply RBI uses quantitative and qualitative tools.

   d) Leader of money market (banker to the banking system): RBI acts as a bank to the banking system. RBI has the power to control and guide of all the commercial banks in the country.

   e) Custodian of foreign exchange reserves: RBI is the custodian of the foreign exchange reserves of the economy. RBI preserves and provides the precious foreign exchange of the country.

   f) Lender of last resort: When commercial banks are not able to get funds from any sources, finally RBI will be ready to lend to banks at all times, due to this, RBI is said to be the 'Lender of the lost Resort'.

3. **Write a note on legal definitions of money.**

  The total stock of money in circulation among the public at a particular point of time is called money supply. RBI publishes figures for four alternative measures of money supply, viz., M1, M2, M3 and M4. These are defined as follows.

M1 = CU + DD

 [Currency held by public (CU) + demand deposits held by commercial banks (DD)]

M2 = M1 + Saving deposits with post office savings banks.

M3 = M1 + Net time deposits of commercial banks.

M4=M3+Total deposits with post office savings organisations (Excluding national savings certificates).

  M1 and M2 are known as narrow money, M3 and M4 are known as broad money. M1 is most liquid and easiest for transactions. M4 has least liquid of all. M3 is most commonly used measure of money supply. It is also known as aggregative monetary resources.

4. **Write a brief note on Transactionary and speculative Motives of demand for money.**

  People desire to hold money balance broadly from two motives. They are a) The Transaction motive b) The Speculative motive

  a) The Transaction motive: For carryout daily transactions people hold money it is called as the Transaction motive. Commonly people earn incomes at discrete points in time and spend it continuously throughout the interval.

  The transaction demand for money in an economy can be written in the following form.

$$M^d_T = k.T$$

  Here, T is the total value of transaction in the economy over unit period, and k is a positive fraction. The number of times a unit of money changes hands during the unit period is called the velocity of circulation of money. It can be written in the following form.

$$\frac{1}{K}.M^d_T = T \quad \text{OR} \quad V.M^d_T = T$$

  Here, $v = \frac{1}{K}$ is the velocity of circulation. There is a stable and positive relationship between GDP and value of transactions. Therefore equation $M^d_T = k.T$ can be modified in the following way.

$$M^d_T = k.PY$$

  Here, Y is the real GDP and P is the general price level or GDP deflator.

  b) The Speculative motive: The people hold cash balance to speculative with the aim of earning capital gains and profits is called speculative motive.

  The speculations regarding future movements in interest rate and bond prices give rise to the speculative demand for money. There is inverse relationship between speculative demand for money and the rate of interest. The speculative demand for money can be written as

$$M^d_S = \frac{r_{max} - r}{r - r_{min}}$$

  Here, r is the market rate of interest and r_{max} and r_{min} are the upper and lower limits of interest.

VII. Answer the following questions in 20 sentences. (Each question carries 6 marks)

1. **Explain the functions of money and how does money overcome the short comings of barter system?**

  Anything that is commonly accepted by everyone as a medium of exchange and acts as a measure of value is called money. The functions of money are as follows.

a) Medium of exchange: The first and foremost function of money is acts as a medium of exchange. The individual can sell their products for money and use this money to purchase the commodities they need.

Money has solved the major defects of the barter system. In barter system they presume the rather improbable double coincidence of wants. For example, an individual who has a surplus of rice which he wishes to exchange for clothing. If he is not lucky enough he may not be able to find another person who has the diametrically opposite demand for rice with a surplus of clothing to offer in exchange and also search costs may become increases.

b) Measure of value: The value of all goods and services can be expressed in monetary units. Because money acts as a convenient unit of account.

c) Store of value: Wealth can be stored in the form of money for future use. But in barter system it is not possible to store the wealth without losing its value. Because some commodities are perishable and cannot be stored beyond a certain period. This can be solved by selling of goods and hold the money in the form of wealth.

d) Transfer of value: In Barter system it is difficult to carry or transfer individual's wealth. But wealth can be easily transferred one place to another place with the help of money. For holding goods requires a lot of space and its storage costs is very high. But holding money does not require lot of space and its storage costs are considerably low.

2. Write the story of Gold smith Lala on the process of deposit and loan (credit) creation by commercial banks.

The commercial banks accept deposits from the public and lend out part of these funds to those who want to borrow. With the help of this process commercial banks are make credit creation. In order to understand this process let us discuss Lala's story.

Once there was a goldsmith named Lala in a village. In this village, people used gold and other precious metals in order to buy goods and services. People in the village started keeping their gold with Lala for safe-keeping. In return for keeping their gold, Lala issued paper receipts to people and charged a small fee from them. Slowly, over time, the paper receipts issued by Lala began to circulate as money. This means that instead of giving gold for purchasing of goods, someone would pay for goods by giving by the paper receipts issued by Lala. Thus paper receipts started acting as money since everyone in the village accepted these as a medium of exchange.

Now, let us suppose that Lala had 100 kgs of gold, deposited by different people and Lala had issued receipts corresponding to 100 kgs of gold. At this time Ramu comes to Lala and asks for a loan of 25 kgs of gold. Then Lala could decide that everyone with gold deposits will not come to withdraw their deposits at the same time and so he may as well give the loan to Ramu and charge him for it. If Lala gives the loan of 25 kgs of gold, Ramu could also pay Ali with these 25 kgs of gold and Ali could keep the 25 kgs of gold with Lala in return for a paper receipt. In effect, the paper receipts, acting as money, would have risen to 125 kgs now. It seems that Lala has created money out of the air! The modern banking system works precisely the way Lala behaves in this example.

3. Explain the Open Market Operation.

Open market operation is an important tool by which the RBI influences money supply. Open market operation refers to buying and selling bonds issued by the government in the open market. This purchase and sale is entrusted to the central bank on behalf of the government.

When RBI buys a government bond in the open market during deflation, increases the total amount of reserves in the economy and thus increases the money supply. Selling of a bond during inflation by RBI leads to reduction in quantity of reserves and thus decreases the money supply.

There are two types of open market operations: a) Outright   b) Repo.

a) Outright: Outright open market operation is permanent in nature. If the central bank buys or sells securities without promise of selling or buying of securities later is called Outright. When the central bank buys securities without any promise to sell them later. Similarly, when the central bank sells these

securities without any promise to buy them later. As a result, the injection /absorption of the money is of permanent nature.

b) Repo (Repurchase agreement): If the central bank buys securities with the promise of selling them later is called a Repurchase agreement or Repo. The interest rate at which the money is lent in this way is called Repo rate. Similarly, if the central bank sells securities with the promise of buying them later is called Reverse Repo or Reverse Repurchase agreement. The rate at which the money is withdrawn in this manner as called the reverse repo rate. Both Repo and Reverse repo consist of buying or selling specifications about date and Price of securities.

The RBI conducts Repo and Reverse Repo operations at various maturities viz., overnight, 7 days. 14 days etc.

4. **Requirement of reserves acts as a limit to money (credit) creation. Explain.**

The commercial banks accept deposits from the public and lend these funds to those who want to borrow. With the help of this process commercial banks make credit creation. But there is a limit of credit creation by commercial banks and this is determined by the RBI.

The RBI decides a certain percentage of deposits which every bank must keep as reserves. This is a legal requirement and is binding on the banks. This is called the 'Required Reserve Ratio" or 'Cash Reserve Ratio' (CRR).

Percentage of deposits which a bank must keep as cash reserves in central bank is called Cash Reserve Ratio (CRR). Similarly the percentage of deposits which a bank must keep as reserves with itself is called 'Statutory Liquidity Ratio' (SLR).

The RBI is going to control or limit the credit creation of commercial banks by increasing CRR and SLR. This can be understood with the help of following example.

Suppose, CRR is 20 %, with the deposit of Rs 100, bank needs to keep Rs 20 (20% of 100) as cash reserves. Only the remaining amount of deposits i.e. Rs 80 (100-20=80) can be used to give loans. The statutory requirement of the reserve ratio acts as a limit to the amount of credit that banks can create.

VIII. Assignment and project oriented question. (Each question carries 5 marks)
1. Write a note on Demonetisation.

Demonetisation is an act of cancelling the legal tender status of a currency unit in circulation. Demonetisation was a new initiative taken by the government of India in 8th November 2016. To tackle the problems of corruption, black money, terrorism and circulation of fake currency in the economy.

Old currency notes of Rs 500 and Rs 1000 were no longer legal tender. New currency notes in the denomination of Rs 500 and Rs2000 were launched. The public were advised to deposit old currency notes in their bank accounts till 31st December 2016 without any declaration and upto 31st march 2017 with the RBI with declaration.

This move received both appreciation and criticism. There were long queues outside banks and ATM booths. To avoid a complete breakdown and cash crunch, the government had allowed to exchange of Rs 4000 old currency by new currency per person and per day. Further till 12th December 2016, old currency notes were acceptable as legal tender at petrol pumps and government hospitals and for payment of government dues, like taxes, power bills etc. This move has had positive impacts also they are as follows.

   a) It improved tax compliance as a large number of people were bought in the tax ambit.
   b) The savings of an individual were channelised into the formal financial system.
   c) Banks have more resources at their disposal which can be used to provide more loans at lower interest rates.
   d) Households and firms have begun to shift from cash to electronic payment technologies.
   e) By shifting transactions out of the cash economy into the formal payment system.
   However the shortage of currency in circulation had an adverse impact on the economic activities.

CHAPTER-10: DETERMINATION OF INCOME AND EMPLOYMENT

I. **Choose the correct answer. (each question carries 1mark)**

1. **Consumption which is dependent of income is called**
   - a) Induced consumption
   - b) Autonomous consumption
   - c) Wasteful consumption
   - d) Past consumption

2. **Value of MPC lies between**
   - a) 1 and 2
   - b) 0 and 1
   - c) 2 and 4
   - d) 0 and 0.5

3. **The point where ex-ante aggregate demand is equal to ex-ante aggregate supply will be**
   - a) equilibrium
   - b) disequilibrium
   - c) excess demand
   - d) excess supply

4. **Easy availability of credit encourages**
   - a) saving
   - b) investment
   - c) rate of interest
   - d) None of the above

5. **In the situation of excess demand**
   - a) demand is less than the level of output
   - b) demand is more than the level of output
   - c) supply is less than the level of output
   - d) supply is more than the level of output

   Answers: 1) b,   2) b,   3) a,   4) b,   5) b.

II. **Fill in the blanks. (Each question carries 1 mark)**

1. cY shows the dependence of consumption on _____.
2. Savings is that part of income that is _____.
3. Average propensity to consume (APC) is the consumption per unit of _____.
4. _____ is defined as addition to the stock of physical capital.
5. Size of the multiplier depends on the value of _____.
6. $\bar{I}$ is a positive constant which represents the _____ investment in the economy.

   Answers: 1) Income,   2) Not consumed,   3) Income,
   4) Investment,   5) c,   6) Autonomous.

III. **Match the following. (each question carries 1 mark)**

A	B
1. Savings	a) APC (Average Propensity to Consume)
2. Raw material	b) $\bar{C} + \bar{I} + c.Y$
3. Consumption per unit of income	c) Intermediate good
4. Aggregate demand for final goods	d) Leads to rise in the prices in the long run
5. Excess demand	e) Y - C

   Answers: 1) e,   2) c,   3) a,   4) b,   5) d.

V. Answer the following questions in 4 sentences. (Each question carries 2 marks)

1. Write the meaning of excess demand and deficit demand.

If the equilibrium level of output is more than the full employment level of output it is called excess demand. If the equilibrium level of output is less than the full employment level of output it is called deficit demand.

2. Give the meaning of investment multiplier and Write its formula.

The ratio of the total increment in equilibrium value of final goods output to the initial increment in autonomous expenditure is called investment multiplier.

The investment multiplier $= \frac{\Delta Y}{\Delta \bar{A}} = \frac{1}{1-c} = \frac{1}{S}$

3. Give the meaning of paradox of thrift.

If all the people of the economy increase the proportion of income they save (MPS), the total value of savings in the economy will not increase. It will either decline or remain unchanged. This result is known as the paradox of thrift.

VI. Answer the following questions in 12 sentences. (Each question carries 4 marks)

1. Give the meaning of Aggregate demand function. How can it be obtained graphically?

The total demand at each level of income made up of consumption and investment is called aggregate demand function.

The aggregate demand function shows the total demand at each level of income. (AD $= \bar{C} + \bar{I} + c.Y$). Graphically it means the aggregate demand and investment function can be obtained by vertically adding the consumption and investment function.
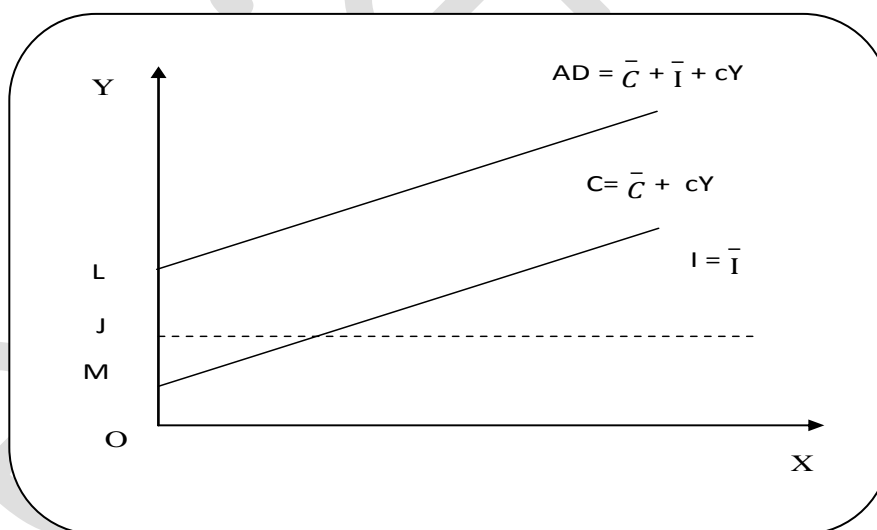
In the diagram, OM $= \bar{C}$ (constant consumption), OJ $= \bar{I}$ (constant investment), OL $= \bar{C} + \bar{I}$ (constant consumption and investment). The diagram shows the aggregate demand function can be obtained by vertically adding the consumption (C $= \bar{C} + cY$) and investment (I$=\bar{I}$) functions. (OM+OJ=OL). The aggregate demand function is parallel to the consumption function i.e. they have same slopes and aggregate demand function shows ex-ante demand.

2. Briefly explain consumption function.

The functional relationship between consumption and income is called consumption function. The simplest consumption function assumes that consumption changes at a constant rate as income changes. Of course, even if income is zero, some consumption still takes place. Since this level of consumption is independent of income, it is called Autonomous consumption. We can write the consumption function as C $= \bar{C} + cY$, here C is the consumption expenditure by households, $\bar{C}$ is autonomous consumption and cY represents induced consumption.

Induced consumption (cY) depends on income, it means consumption raises when income rises. It can be shown by MPC (Marginal Propensity Consume.

$$MPC = \frac{\Delta C}{\Delta Y} = c$$

MPC can be calculated with the help of above equation. Generally value of MPC lies between 0 and 1. This means that as income increases either the consumers do not increase consumption at all (MPC =0) or use entire change in income on consumption (MPC =1) or use part of the change in income for changing consumption (0 <MPC<1).

Imagine a country has a consumption function described by C = 100+0.8Y. This indicates that even the country does not have any income, its citizens still consume Rs 100 worth of goods. This is autonomous consumption (100). This means that if income goes up by Rs 100 in the country, consumption will go up by Rs 80.

The functional relationship between consumption and income can be shown in the following equation and graph. C=$\bar{C}$+cY, here C is consumption function, $\bar{C}$ is intercept of the consumption function, c is slope of the consumption function (tan α)
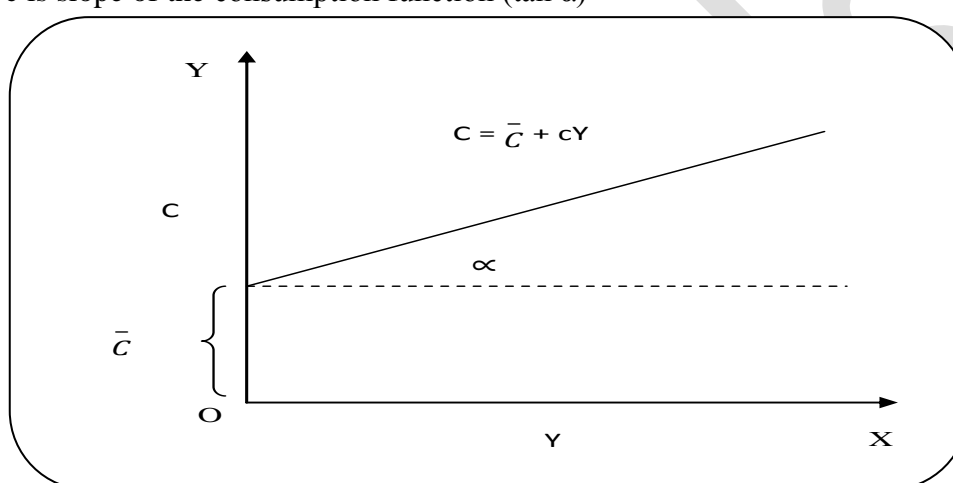
The diagram shows that even income is zero, there will be autonomous consumption and consumption increases when income increases. But change in the rate of consumption is less than the change in the rate of income.

3. Explain the investment function with the help of graphs.

The functional relationship between investment and autonomous investment is called investment function. Investment function can be shown as I=$\bar{I}$, here $\bar{I}$ is a positive constant which represents the autonomous investment in the economy in a given year.
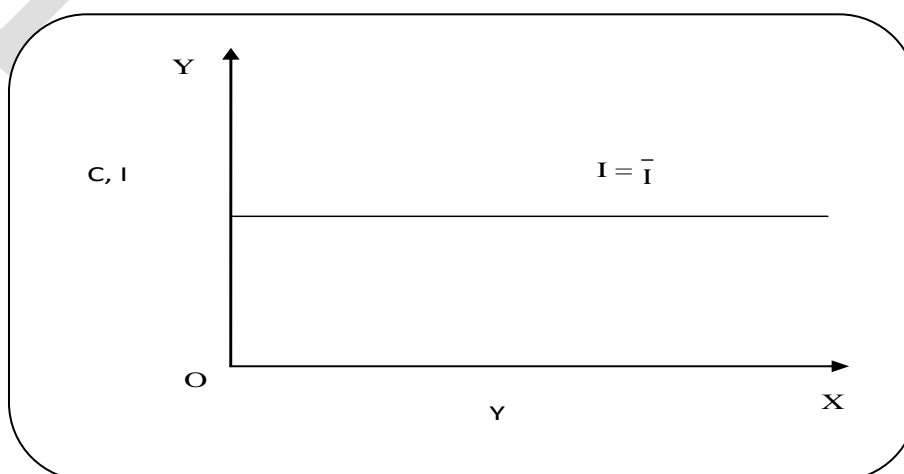
The investment function shown in the above graph as a horizontal line at a height equal to $\bar{I}$ above the horizontal axis. In this diagram, $\bar{I}$ is autonomous which means, it is the same no matter whatever is the level of income.

VII. Answer the following questions in 20 sentences. (Each question carries 6 marks)

1. Explain the effect of an autonomous change in aggregate demand on income and output.

The equilibrium level of income depends on aggregate demand. Thus, if aggregate demand changes, the equilibrium level of income also changes. This can happen in any one or combination of the following situations.

a) Change in consumption: This can happen due to change in autonomous consumption ($\bar{C}$) and change in induced consumption(c).

b) Change in investment: We have assumed that investment is autonomous. However, it just means that it does not depend on income. But there are a number of variables other than income which can affect investment. They are availability of credit and interest rate. Easy availability of credit encourages investment, other hand higher interest rate causes lower investment.

Let us now concentrate on change in investment with the help of the following example. Let C=40+0.8Y, I=10. In this case, the equilibrium income comes out to be 250. Now, let investment raise to 20. It can be seen that the new equilibrium will be 300. This increase in income is due to raise in investment, which is a component of autonomous expenditure here.

If C=40+0.8Y and I=10, Y= 250	If C=40+0.8Y and I=20, Y= 300
Y=40+0.8Y+10 when Y=C+I	Y=40+0.8Y+20 when Y=C+I
Y=50+0.8Y	Y=60+0.8Y
Y-0.8Y=50	Y-0.8Y=60
Y(1-0.8)=50	Y(1-0.8)=60
Y(0.2)=50	Y(0.2)=60
Y=50/0.2	Y=60/0.2
Y=250	Y=300
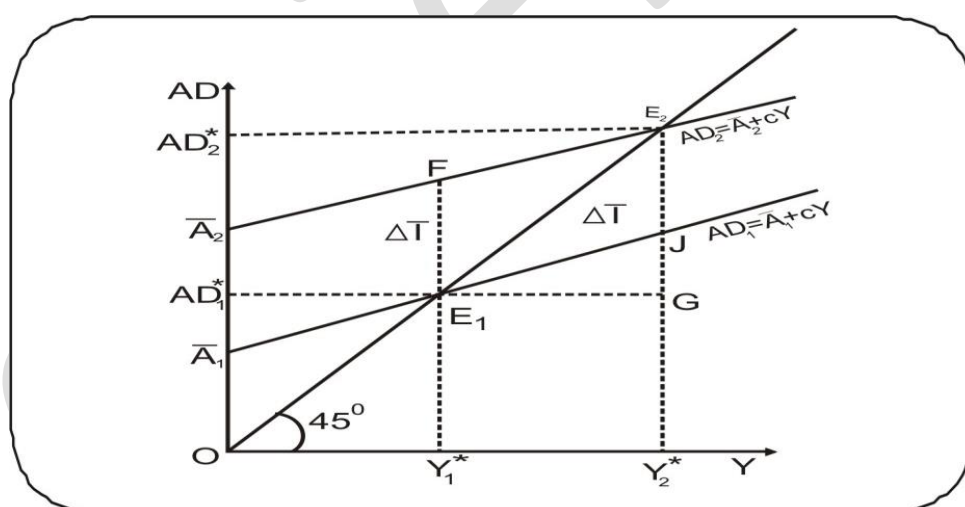
In the a above graph, when autonomous investment increases ($\bar{A}_1$ to $\bar{A}_2$), AD^*_1 line shifts in parallel upward and assumes the position AD^*_2. The value of aggregate demand at output Y^*_1 is $Y^*_1 F$, which is greater than the value of output $OY^*_1 = Y^*_1 E_1$ by an amount $E_1 F$. $E_1 F$ measures the amount of excess demand that emerges in the economy as a result of the increase in autonomous expenditure. Thus E_1 no longer represents the equilibrium. To find the new equilibrium in the final goods market we must look for the point where the new aggregate demand line, AD_2, intersects the 45^0 line. That occurs at point E_2, which is, therefore, the new equilibrium values of output and aggregate demand are Y^*_2 and AD^*_2 respectively.

2. Explain the supply side of macroeconomic equilibrium.

In the first stage of macroeconomic theory, we are taking the price level as fixed. Here aggregate supply or the GDP is assumed to smoothly move up and down since they are unused resources of all types available. Whatever is the level of GDP, that much will be supplied and price level has no role to play. The supply side of macroeconomic equilibrium can be explained with the help of diagram.
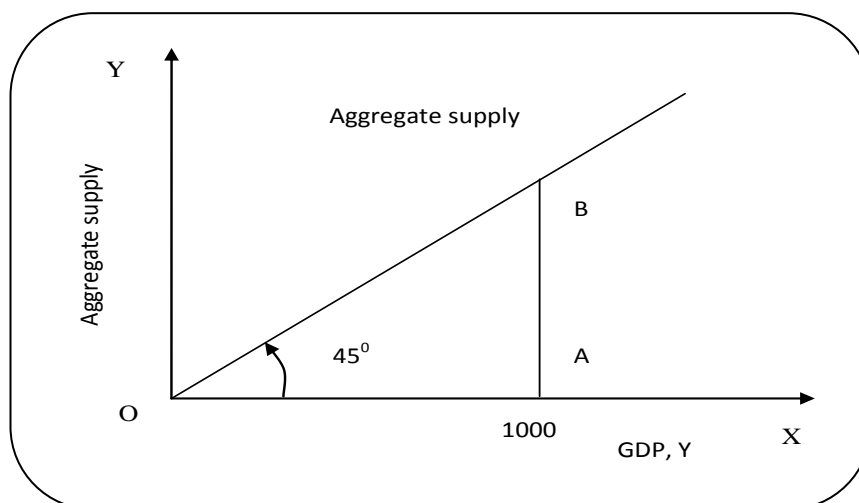
In this diagram, OY axis measures aggregate supply, OX axis measures GDP. 45^0 line shows relationship between aggregate supply and GDP. The 45^0 line has the feature that every point on it has the same horizontal and vertical coordinates. Suppose, GDP is Rs 1000 at point A. aggregate supply also Rs 1000 worth of goods (value of goods is AB).

3. Explain the Multiplier mechanism.

The ratio of the total increment in equilibrium value of final goods output to the initial increment in autonomous expenditure is called the investment multiplier.

The sum total of aggregate factors payments (wage, interest, rent and profit) in the economy is equal to the aggregate value of output of final goods (GDP). When autonomous expenditure changes about 10 units, the change in income is equal to 50 units. This can be understood by looking at the multiplier mechanism.

In the above example the value of the extra output 10 is distributed among various factors as factor payments and hence the income of the economy goes up by 10. Consumption expenditure goes up by (0.8) 10, because of income increases. Since people spend 0.8 fraction (MPC) of their additional income on consumption. Hence, in the next round, aggregate demand in the economy goes up by (0.8) 10 and again emerges an excess demand equal to (0.8) 10. Therefore, in the next production cycle, producers increase their planned output further by (0.8) 10 to restore equilibrium. When this extra output is distributed among factors, the income of the economy goes up by (0.8) 10 and consumption demand increases further by $(0.8)^2$ 10, once again creating excess demand of the same amount. This process goes on, round after round as shown in the table.

The Multiplier Mechanism in the final goods market

	Consumption	Aggregate demand	Output or income
Round 1st	0	10(Autonomous increment)	10
Round 2nd	(0.8) 10	(0.8) 10	(0.8) 10
Round 3rd	$(0.8)^2$ 10	$(0.8)^2$ 10	$(0.8)^2$ 10
Round 4th	$(0.8)^3$ 10	$(0.8)^3$ 10	$(0.8)^3$ 10
. . .	. . .	. . .	. . . Etc

The multiplier mechanism of the table can be written as

$$10 + (0.8)10 + (0.8)^2 10 + \ldots \infty = 10\{1+(0.8)+(0.8)^2 + \ldots \infty\} = \frac{10}{1-0.8} = 50$$

In this way, the increment in equilibrium value of total output thus exceeds the initial increment in autonomous expenditure. 10 and 0.8 represent the values of $\triangle \bar{I} = \triangle \bar{A}$ and MPC, respectively. The expression for the multiplier can be explained as,

$$\text{Investment multiplier} = \frac{\Delta Y}{\Delta \bar{A}} = \frac{1}{1-c} = \frac{1}{S}$$

4. Discuss the paradox of thrift.

If all the people of the economy increase the proportion of income they save (i.e., if the MPS of the economy increases) the total value of savings in the economy will not increase, it will either decline or remain unchanged. This result is known as the paradox of thrift. Which states that as people become more thrifty they end up savings less or same as before.

Let us continue with the example. Suppose at the initial equilibrium Y = 250. People are suddenly become more thrifty, this may happen due to a new information regarding an imminent war or some other impending disaster, which makes people more circumspect and conservative about their expenditures. Hence the MPS of the economy increases or the MPC decreases from 0.8 to 0.5.

The sudden decline in MPC will imply a decrease in aggregate consumption spending and hence in aggregate demand [AD= $\bar{A}$+ $_c$Y.(0.8-0.5)250=75]. In result output decreases below 250 and there emerges an excess supply equal to 75 in the economy.

Stocks are piling up in warehouses and producers decide to cut the value of production by 75 in the next round. Producers reduce output further by 75, due to decrease in aggregate demand by 75. In result a reduction in income by 75.

Thereafter, the new value of MPC which is 0.5, Consumption expenditure and hence aggregate demand, decreases by (0.5)75, again there is reduction in output by(0.5)75 and income by (0.5) 75. This process goes on in manner of $75+(0.5)75+(0.5)^2 75+ \ldots \infty$. And the total reduction in output turns out to be. $\frac{75}{1-0.5} = 150.$
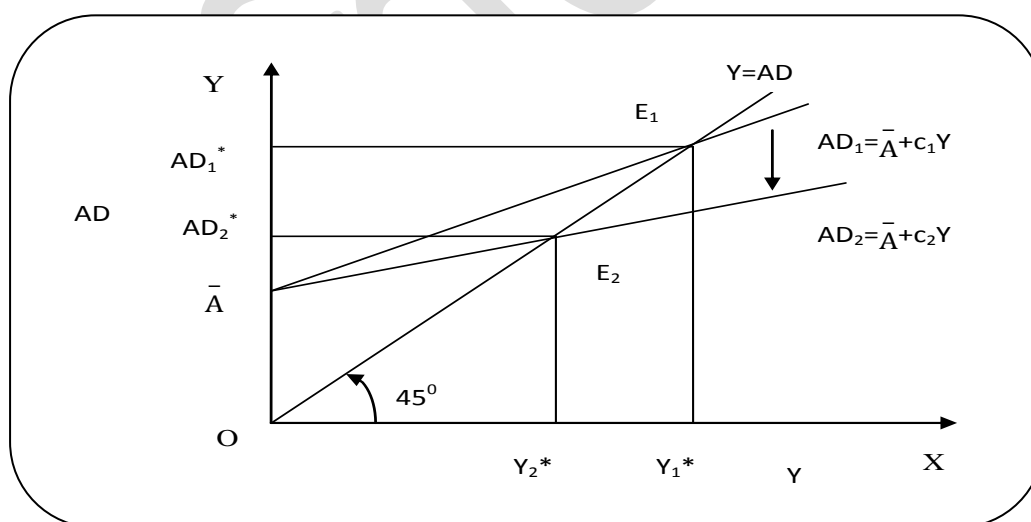
In the above diagram AD$^*_1$= $\bar{A}$+c_1Y curve has slope by 0.8, when $\bar{A} = 50$, income will be $y^*_1 = \frac{50}{1-0.8} = 250$. When MPC decreases (from 0.8 to 0.5) the curve shifts to AD$_2$= $\bar{A}$+ c_2Y. The slope of this curve is 0.5, when $\bar{A} = 50$, income will be $y^*_2 = \frac{50}{1-0.5} = 100$.

The income decreases by y^*_1 to y^*_2 due to decrease in aggregate demand by AD$^*_1$ to AD$^*_2$. So, if all the people of the economy increase their savings, the total value of savings in the economy will not increases, it will either decline or remain unchanged, this situation is called as paradox of thrift.

CHAPTER-11 : GOVERNMENT BUDGET AND THE ECONOMY

I.   Choose the correct answer. (each question carries 1mark)

1.   The taxes on Individual and firms are.

    a) Direct Taxes   b) Indirect Taxes

    c) Fixed Taxes   d) Non Tax Revenues

2.   Duties levied on goods produced within the country

    a) Service Tax   b) Estate Duties

    c) Excise Duties (Taxes)   d) Customs Duties

3.   The tax which acts as an automatic stabiliser

    a) Qualitative Income Tax   b) Income Tax

    c) Quantitative Tax   d) Proportional Income Tax

4.   Which of the following is an example for 'Paper Taxes'

    a) Income Tax   b) Excise Taxes

    c) Wealth tax   d) Custom Taxes

5.   When demand exceeds the available output under conditions of high level of employment, this may give rise to

    a) Inflation   b) Deflation

    c) Stabilisation   d) None of the above

Answers: 1) a,   2) c,   3) d,   4) c,   5) a.

II.   Fill in the blanks. (Each question carries 1 mark)

1.   Non paying users of public goods are known as_____.
2.   Financial year runs from _____ to _____ in India.
3.   Taxes imposed on goods imported into and exported out of India are called _____.
4.   The Government may spend an amount equal to the revenue it collects. This is known as _____.
5.   Revenue deficit = Revenue expenditure - _____.

Answers: 1) Free riders,   2) April 1 to March 31,   3) Customs duties,
**   4) Balanced Budget, 5) Revenue receipts.**

IV. Answer the following questions in 4 sentences. (Each question carries 2 marks)

1. Write the difference between public provision and public production.

Public provision	Public production
a) They are financed through the budget.	a) These are produced by the government or the private sector.
b) These are can be used without any direct payment.	b) When the goods are produced directly by the government is called public production.

2. Who are 'Free riders'? Why are they called so?

        Non-paying users of public goods are called free riders. Because, they will not voluntarily pay for what they can get for free and for which there is no exclusive title to the property being enjoyed.

3. Distinguish between surplus budget and deficit budget.

Surplus budget	Deficit budget
a) Here tax collection exceeds the required expenditure.	a) Here expenditure exceeds the tax collection.
b) Surplus budget is very rare feature in the world.	b) Deficit budget is most common feature in the world.

4. Why public goods must be provided by the government?

      Certain goods and services like Nation defence, Roads, Administration etc. cannot be provided by the market mechanism, and also, in case of private goods anyone who does not pay for the goods can be excluded from enjoying its benefit. Therefore public goods must be provided by the government.

5. Mention the non – tax revenues of the central Government.

    Non tax revenues of the central government.

    A) Interest receipts on account of loans by the central government.
    B) Dividends.
    C) Profits on investment made by the government.
    D) Fees.
    E) Receipts for services rendered by the government.
    F) Cash grants-in-aid from foreign countries and international organisations.

6. Why the proportional income tax acts as automatic stabilizer?

      The proportional income tax makes disposable income and consumer spending less sensitive fluctuations in GDP. When GDP rises, disposable income also rises but by less than the rise in GDP, because a part of it is siphoned off as taxes. This helps limit the upward fluctuation in consumption spending. During a recession when GDP falls, disposable income falls less sharply, and consumption does not drop as much as it otherwise would have fallen had the tax liability been fixed. This reduces the fall in aggregate demand and stabilises the economy.

V. Answer the following questions in 12 sentences. (Each question carries 4 marks)

1. Write the chart of the Government budget.
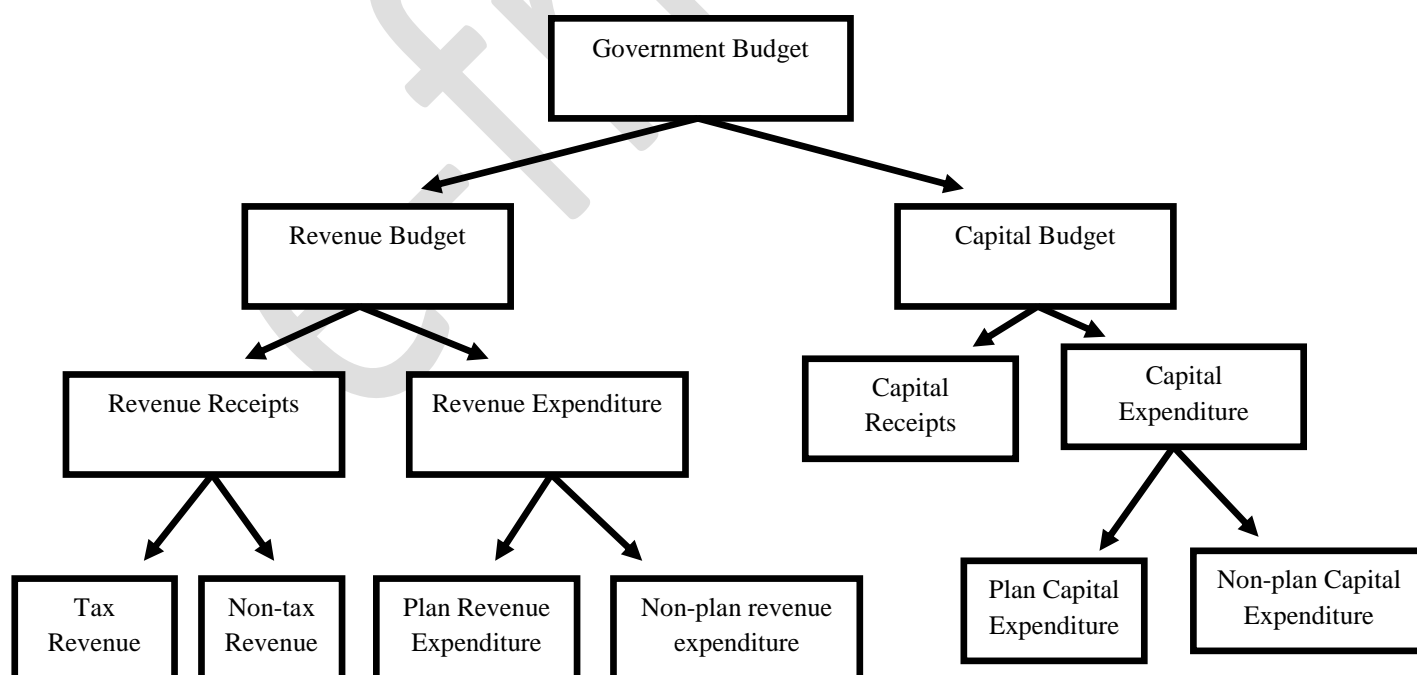
2. **Distinguish between Revenue expenditure and capital expenditure.**

Revenue expenditure	Capital expenditure
a) The expenditure incurred for the purposes other than the creation of physical or financial assets.	a) The expenditure which results in creation of physical or financial assets or reduction in financial liabilities.
b) It is related to those expenses incurred for functioning of the government departments and services.	b) It is related to those expenses on the acquisition of land, building, machinery equipment, investment in shares and loans and advances by the central government.
c) It helps indirectly to the economic development.	c) It helps directly to the economic development.
d) Interest payment, defence services, subsidies, salaries and pensions are main items of revenue expenditure.	d) The expenditure on agriculture, industry, transport, communication, education, health and housing are main items of capital expenditure.

3. **Briefly explain the revenue deficit and fiscal deficit.**

When a government spends more than its revenue, it is called budget deficit. There are various measures that capture government deficit among them revenue deficit and fiscal deficit explained as below.

Revenue deficit: The excess of government's revenue expenditure over revenue receipts is called revenue deficit.

Revenue deficit =Revenue expenditure – revenue receipts

The revenue deficit includes only such transactions that affect the current income and expenditure of the government.

Fiscal deficit: The excess of government's total expenditure over its total receipts excluding borrowings is called fiscal deficit.

Gross fiscal deficit = Total expenditure – (revenue receipts + non debt creating capital receipts)

Non debt creating capital receipts are those receipts which are not borrowings and, therefore, do not give rise to debt. Examples are recovery of loans and the proceeds from the sale of PSUs. The fiscal deficit will have to be financed through borrowing. Thus, it indicates the total borrowing requirements of the government from all sources, from the financing side.

Gross fiscal deficit = Net borrowing at home + Borrowing from RBI + Borrowing from abroad.

4. **Does public debt impose a burden? Explain.**

Budgetary deficits must be financed by the various sources of borrowings of the government is called public debt. One must deal with the 'whole' differently from the 'part'. Unlike any one trader, the government can raise resources through taxation and printing money. Therefore public debt may not be burden.

Transfer the burden of debt: By borrowing the government transfers the burden of reduced consumption on future generations. The government borrows by issuing bonds to the people living at present but may decide to pay off the bonds some 20 years later by rising taxes. Therefore whose disposable income will go down and hence consumption, thus, national savings it was argued, would fall. Also, government borrowing from the people reduces the savings available to the private sector. To the extent that this reduces capital formation and growth, debt acts as a 'burden' on future generations.

In other hand, it has been argued that when a government cuts taxes and runs a budget deficit, consumers respond to their after-tax income by spending more. It is possible that these people are short sighted and they may not realise that at some point in future, the government will have to raise taxes to pay off the

debt and accumulated interest. Even if they comprehend this, they may expect the future taxes to fall not on them but on future generations.

Internal and external debt: Commonly internal debt does not matter because we owe it to ourselves. This is because although there is a transfer of resources between generations, purchasing power remains within the nation. However, the external debt involves a burden since we have to send goods abroad corresponding to the interest payments.

5. Write a short note on the Recardian equivalence.

One of the greatest 19th century economists, David Ricardo, who first argued that in the face of high deficits, people save more, it is called the Ricardian equivalence.

Ricardo argued that consumers are forward looking and will base their spending not only on their current income but also on their expected future income. They will understand that borrowing today means higher taxes in the future. Further, the consumer will be concerned about future generations because they are the children and grandchildren of the present generation and the family which is the relevant decision making unit, continues living. They would increase savings now, which will fully offset the increased government dissavings so that national savings do not change. This view is called Ricardian equivalence.

The taxation and borrowing are equivalent means of financing expenditure. When the government increases spending by borrowing today, which will be repaid by taxes in the future, it will have the same impact on the economy as an increase in government expenditure that is financed by a tax increase today.

VI. Answer the following questions in 20 sentences. (Each question carries 6 marks)

1. Explain the classification of receipts.

The income collected by various sources by the government is called receipts. Receipts are classified in to two types they are a) Revenue receipts b) Capital receipts.

a) Revenue receipts:- The receipts that do not lead to a claim on the government is called revenue receipts. They are divided into: 1) Tax Revenue 2) Non Tax Revenue

1) **Tax Revenue** :- Tax is a compulsory contribution (payment) made by the people to the government without expecting any direct returns. There are two types of tax, Direct tax and Indirect tax. Important direct taxes are personal income tax, corporation tax, wealth tax, gift tax etc. Important indirect taxes are excise tax (duties), customs duties, service tax, GST, etc.

2) **Non Tax Revenue** :- Receipts collected by the government other than the tax revenue is called non tax revenue. The non tax revenue of the government mainly consists of interest receipts on account of loans by the central government, dividends, profits on investments made by the government, fees and other receipts for services rendered by the government, cash grants- in- aid from foreign countries and international organisations also included.

b) Capital Receipts:- All those receipts of the government which create liability or reduces financial assets are called as capital receipts. The government also receives money by way of loans or from the sale of its assets. Loans will have to be returned, hence they create liability. Sale of government assets, like sale of shares in Public Sector Undertakings (PSUs) which is referred to as PSU disinvestment, is also part of capital receipts.

Some important capital receipts are internal and external barrowings, loan recoveries, small savings, provident fund, disinvestment, etc.

2. Explain the classification of expenditure.

The expenditure of the government can be classified in to two types, they are revenue expenditure and capital expenditure.

a) Revenue Expenditure:- The expenditure incurred for purposes other than the creation of physical or financial assets of the central government is called revenue expenditure . It relates to those expenses incurred for the normal functioning of the government departments and various services,

interest payments on debt incurred by the government and grants given to state governments and other parties. Revenue expenditure classified into plan and non-plan expenditure.

i) Planned Revenue Expenditure:- Planned revenue expenditure relates to central plans (the five year plans) and central assistance for the state and union territory plans.

ii) Non-plan revenue expenditure:- It is the more important component of revenue expenditure, covers a vast range of general, economic and social services of the government. The main items of non-plan expenditure are interest payments, defence services, subsidies, salaries and pensions. Defence expenditure is committed expenditure, there exists little scope for drastic reduction. Subsidies are an important policy instrument which aim at increasing welfare.

b) Capital expenditure:- The expenditure of the government which result in creation of physical or financial assets or reduction in financial liabilities are called capital expenditure. It includes expenditure on the acquisition of land, building, machinery, equipments, investment in shares and loans and advances by the central government to state and union territory governments, PSUs and other parties.

Capital expenditure can be classified into plan and non-plan capital expenditures.

i) Planned capital expenditure:- Planned capital expenditure, like its revenue counterpart, relates to central plan and central assistance for state and union territory plans.
ii) Non-plan capital expenditure:- Non plan capital expenditure covers various general, social and economic services provided by the government.

3.   The fiscal deficit gives barrowing requirements of the government elucidate.

When a government spends more than its revenue it is called a budget deficit. Fiscal deficit is one of the budget deficit, the excess of government's total expenditure over its total receipts excluding barrowings is called fiscal deficit.

> Fiscal deficit = Total expenditure − (revenue receipts + non debt creating capital receipts)

The fiscal deficit shows barrowing requirements of the government, perspectives on deficits and debt can be explained as fallow.

➢ **Perspectives on deficits and debt**:- One of the main criticisms of deficits is that they are inflationary. Because when government increases spending or cuts taxes, aggregate demand increases. Firms may not be able to produce higher quantities that are being demanded at the ongoing prices. Prices will rise, however, if there are unutilised resources, output is held back by lack of demand. A high fiscal deficit is accompanied by higher demand and greater output and therefore, need not be inflationary.

➢ **Deficit and investment**:- If the government decides to borrow by issuing bonds to finance its deficits, the funds remaining to be invested in the private hands will be smaller. But government deficits succeed in their goal of raising production, there will be more income and therefore more savings in this case both government and industry can borrow more.

➢ **Investment on infrastructure:-** If the government invests in infrastructure, future generations may be better off, provided the return on such investments is greater than the rate of interest. Therefore, the debt should not be considered as burden. Therefore fiscal deficits show barrowing requirements.

4. **Discuss the issue of deficit reduction.**

Government deficit can be reduced by an increase in taxes or reduction in expenditure which is called deficit reduction. The economy will face many problems due to deficit reduction. There are as follows.

A. Thrust to reduction of expenditure:- The government's major thrust of reduction of expenditure could be achieved by raising taxes and by selling shares of PSUs. This could be achieved through making government activities more efficient through better planning of programmes and better administration.

B. Adversely affect the economy:- Cutting back government programmes in vital areas like agriculture, education, health, poverty alleviation etc. would adversely affect the economy.

C. Decrease in economic growth:- Nowadays governments in many countries run huge deficits forcing them to eventually put in place self-imposed constraints of not increasing expenditure over pre- determined levels, it may cause decrease in the economic growth.

5. Explain the changes in taxes with the help of a diagram.

Change in tax rate causes change in disposable income. A cut in taxes increases disposable income (Y-T) at each level of income. It means there is a negative relationship between tax rate and the disposable income. This can be seen in the tax multiplier.

$$\text{Tax Multiplier} = \frac{\Delta Y}{\Delta T} = \frac{-C}{1-C}$$

A tax cut will cause an increase in disposable income. This result aggregate demand of the economy increases and also a tax rise will cause a decrease in disposable income and aggregate demand will decrease. This can be understood through the following diagram.
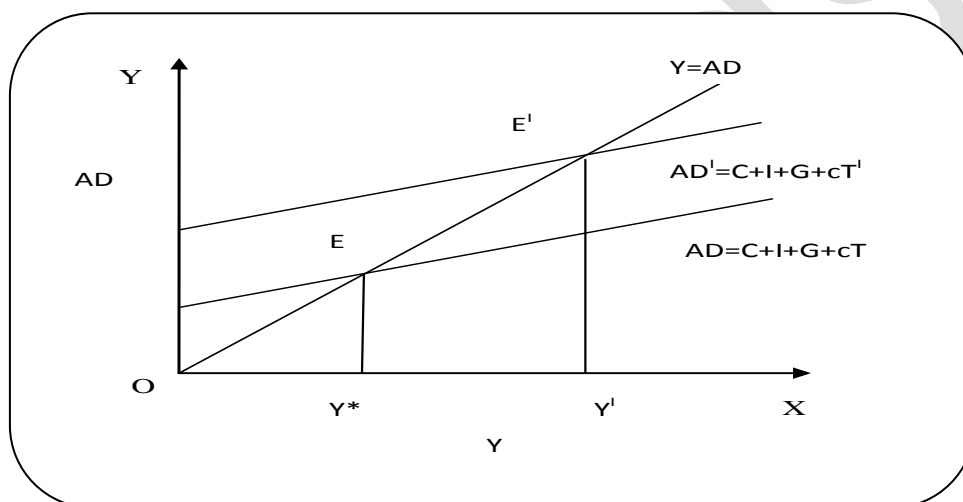
In this diagram OX axis measures income and output and OY axis measures aggregate demand. Now a tax cut will cause increase in aggregate demand, AD to AD^1, due to increase in aggregated demand, output and income also increases. And new equilibrium increases E to E^1 and output increases from OY* to OY^1.

In case of increase in tax will cause decrease in aggregate demand AD^I to AD. And new equilibrium decreases E^I to E and output decreases from OY^I to OY.

Due to the tax multiplier, with a ΔT reduction in taxes, consumption and hence total spending increases by cΔT and with an ΔT increase in taxes, consumption and hence total spending decreases by cΔT.

VIII. Assignment and project oriented question. (Each question carries 5 marks)

1.   Prepare a budget on monthly income and expenditure of your family.

S.N	Income sources of the family	RS	Expenditure items of the family	RS
1	Income from the Agriculture	10000	Monthly expenditure on ration	5000
2	Income from salary	4000	Expenditure on children 's Education and health	4000
3	Income from poultry	1000	Travelling cost	1000
4	Income from sale of milk	2000	Expenditure on fruits, vegetables	500
5	Income from trade	3000	Savings	9500
	Total	**20000**	**Total**	**20000**

CHAPTER-12 : OPEN ECONOMY

I. **Choose the correct answer. (each question carries 1mark)**

1. **The consumers and producers can choose between domestic and foreign goods, this market linkage is called**
   a) Financial market linkage   b) Output market linkage
   c) Labour market linkage   d) None of the above

2. **The exchange rate is determined by the market forces of demand and supply is called as**
   a) Fixed exchange rate   b) Dirty floating exchange rate
   c) Flexible exchange rate   d) None of the above

3. **The balance of payments (BOP) record these transactions between residents and with the rest of the world**
   a) Goods   b) Services   c) Assets   d) All of the above

4. **The rate at which the price of one currency in terms of Foreign currency is called**
   a) Exchange control   b) Interest Rate
   c) Foreign Exchange Rate   d) None of the above

5. **In this standard all currencies were defined in terms of gold**
   a) Metal   b) Silver
   c) Gold Standard   d) None of the above

   Answers: 1) b,   2) c ,   3) d ,   4) c,   5) c.

II. **Fill in the blanks. (Each question carries 1 mark)**

1. _____is the record of trade in goods and services and transfer payments.
2. _____account records all international transactions of assets.
3. The price of foreign currency in terms of Domestic currency has increased and this is called _____of Domestic currency.
4. _____is a mixture of a flexible and fixed exchange rate system.
5. The Bretton woods conference held in the year _____.

   Answers: 1) Current account,   2) Capital account,   3) Depreciation,
   4) Managed floating,   5) 1944.

III. **Match the following. (each question carries 1 mark)**

A	B
1. SDR	a) Dirty Floating
2. Balance of Payment	b) Flexible exchange rate
3. Balance of trade	c) Paper Gold
4. Floating exchange rate	d) Trade in goods
5. Managed floating	e) Trade in goods and service

   Answers: 1) c,   2) e,   3) d,   4) b,   5) a.

IV. **Answer the following questions in 4 sentences.** **(Each question carries 2 marks)**
1. Mention the three linkages of open economy.

Three linkages of open economy are
a) Output market linkage.
b) Financial market linkage.
c) Labour market linkage.

2. What is the difference between current account and capital account?

Current account	Capital account
1) It is the record of trade in goods and services and transfer payments.	1) It is the record of all international transaction of assets.
2) It includes exports and imports of goods and services.	2) It includes foreign direct investments (FDI), foreign institutional investments (FII), external borrowings and assistance.

3. When do surplus and deficit arise in capital Account?

Surplus in capital account arises when capital inflows are greater than capital out flows.

Deficit in capital account arises when capital inflows are lesser than capital out flows.

4. What are the types of balance of trade?

There are three types in balance of trade they are as follows
➢ **Balanced balance of trade:** When the value of exports of goods is equal to the value of imports of goods is called balanced balance of trade.
➢ **Surplus balance of trade:** when the value of exports of goods is more than the value of imports of goods is called surplus balance of trade.
➢ **Deficit balance of trade:** when the value of exports of goods is less than the value of imports of goods is called deficit balance of trade.

5. Why do people demand foreign exchange?

People demand foreign exchange because they want to purchase goods and services from other countries, they want to send gifts abroad and they want to purchase financial assets of a certain country.

6. What is foreign exchange rate?

The price of one currency in terms of another currency is called foreign exchange rate, it is also called Forex Rate. For example, if we have to pay ₹50 for $1, the exchange rate is ₹50 per $1.

V. Answer the following questions in 12 sentences. **(Each question carries 4 marks)**

1. **Write a note on balance of trade.**

The deference between the value of exports and the value of imports of goods of a country in a given period of time is called balance of trade.

Balance of trade (BOT) records only the value of exports and the value of imports of goods. Exports of goods are entered as a credit item in BOT. Whereas, imports of goods are entered as a debit item in BOT. There may be surplus, balance and deficit in the balance of trade.

Balanced balance of trade: When the value of exports of goods are equal to the value of imports of goods is called balanced balance of trade.

Surplus balance of trade: When the value of exports of goods is more than the value of imports of goods is called surplus balance of trade.
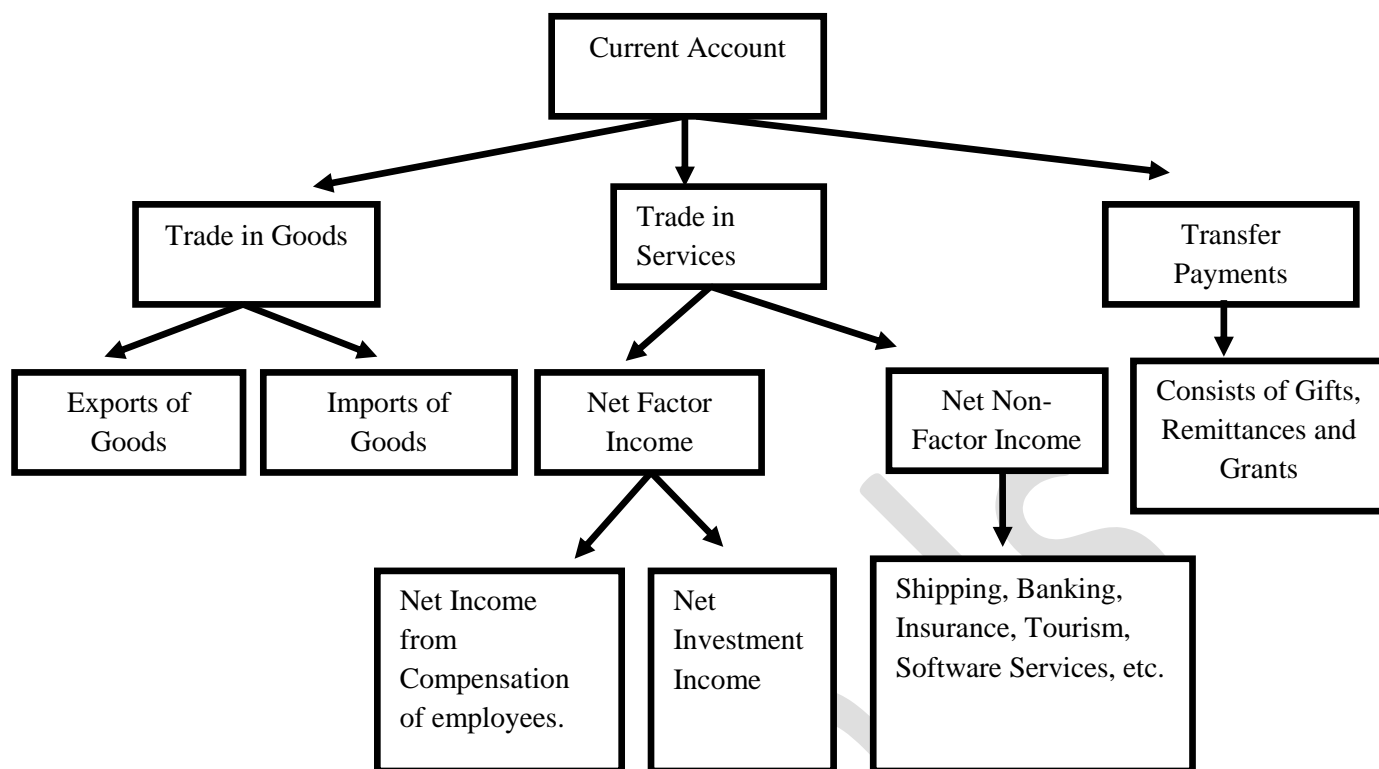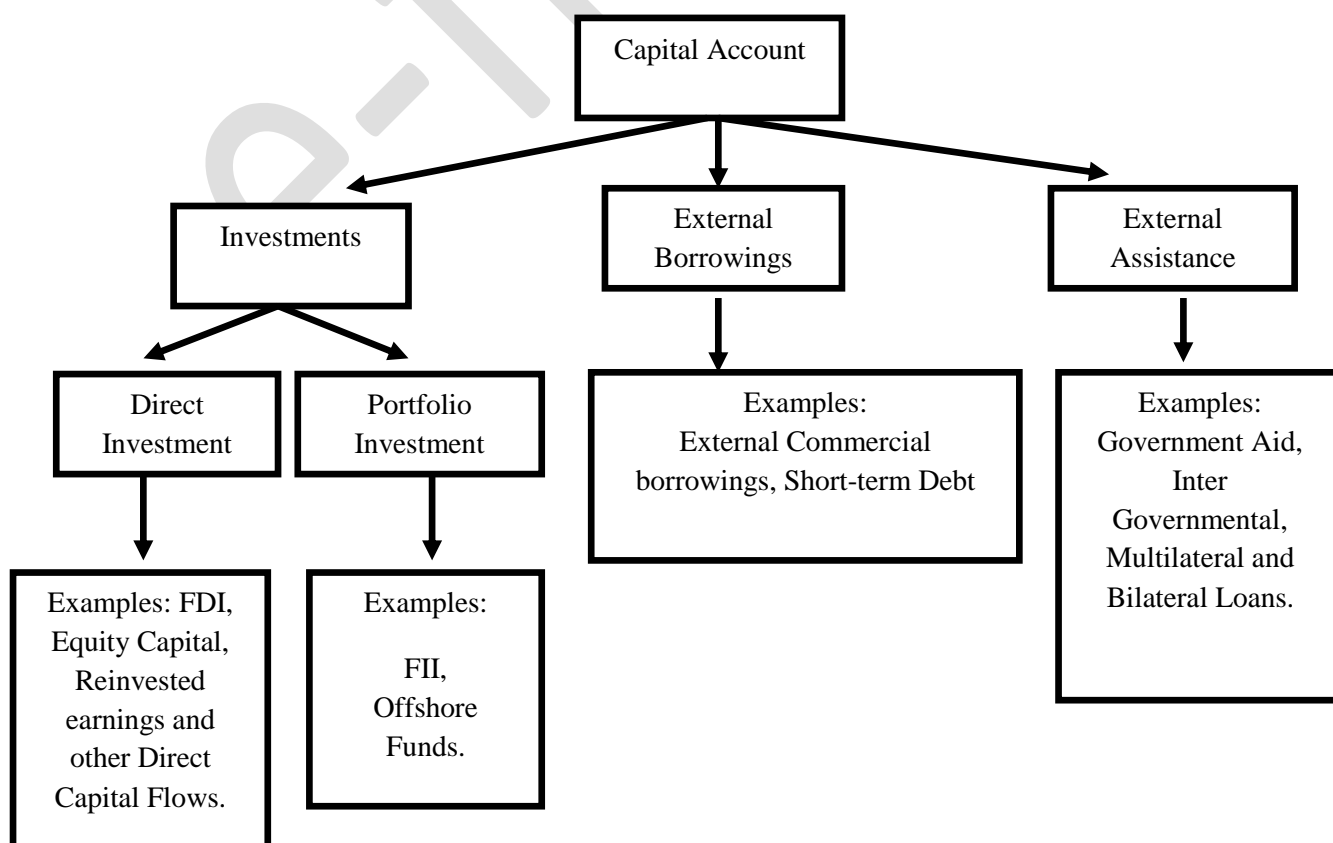
Deficit balance of trade: when the value of exports of goods is less than the value of imports of goods is called deficit balance of trade.

**2. Write the chart of components of current account.**

```
                            ┌──────────────────┐
                            │ Current Account  │
                            └──────────────────┘
              ┌────────────────────┼──────────────────────┐
              ▼                    ▼                       ▼
     ┌────────────────┐   ┌────────────────┐      ┌────────────────┐
     │ Trade in Goods │   │ Trade in       │      │ Transfer       │
     │                │   │ Services       │      │ Payments       │
     └────────────────┘   └────────────────┘      └────────────────┘
       ┌──────┴──────┐      ┌──────┴──────────┐             │
       ▼             ▼      ▼                 ▼             ▼
 ┌──────────┐ ┌──────────┐ ┌──────────┐ ┌──────────┐ ┌──────────────┐
 │ Exports  │ │ Imports  │ │ Net      │ │ Net Non- │ │ Consists of  │
 │ of Goods │ │ of Goods │ │ Factor   │ │ Factor   │ │ Gifts,       │
 │          │ │          │ │ Income   │ │ Income   │ │ Remittances  │
 └──────────┘ └──────────┘ └──────────┘ └──────────┘ │ and Grants   │
                            ┌────┴────┐       │       └──────────────┘
                            ▼         ▼       ▼
                    ┌──────────┐ ┌────────┐ ┌──────────────┐
                    │ Net      │ │ Net    │ │ Shipping,    │
                    │ Income   │ │ Invest-│ │ Banking,     │
                    │ from     │ │ ment   │ │ Insurance,   │
                    │ Compen-  │ │ Income │ │ Tourism,     │
                    │ sation   │ │        │ │ Software     │
                    │ of emp-  │ │        │ │ Services,etc.│
                    │ loyees.  │ │        │ │              │
                    └──────────┘ └────────┘ └──────────────┘
```

3. Write the chart of components of capital account.

```
                            ┌──────────────────┐
                            │ Capital Account  │
                            └──────────────────┘
              ┌────────────────────┼──────────────────────┐
              ▼                    ▼                       ▼
     ┌────────────────┐   ┌────────────────┐      ┌────────────────┐
     │ Investments    │   │ External       │      │ External       │
     │                │   │ Borrowings     │      │ Assistance     │
     └────────────────┘   └────────────────┘      └────────────────┘
       ┌──────┴──────┐            │                       │
       ▼             ▼            ▼                       ▼
 ┌──────────┐ ┌──────────┐ ┌──────────────┐      ┌──────────────┐
 │ Direct   │ │ Portfolio│ │ Examples:    │      │ Examples:    │
 │ Invest-  │ │ Invest-  │ │ External     │      │ Government   │
 │ ment     │ │ ment     │ │ Commercial   │      │ Aid, Inter   │
 └──────────┘ └──────────┘ │ borrowings,  │      │ Governmental,│
      │            │       │ Short-term   │      │ Multilateral │
      ▼            ▼       │ Debt         │      │ and Bilateral│
 ┌──────────┐ ┌──────────┐ └──────────────┘      │ Loans.       │
 │ Examples:│ │ Examples:│                        └──────────────┘
 │ FDI,     │ │          │
 │ Equity   │ │ FII,     │
 │ Capital, │ │ Offshore │
 │ Reinves- │ │ Funds.   │
 │ ted earn-│ │          │
 │ ings and │ │          │
 │ other    │ │          │
 │ Direct   │ │          │
 │ Capital  │ │          │
 │ Flows.   │ │          │
 └──────────┘ └──────────┘
```

4. Briefly explain the effect of an increase in demand for imports in the foreign exchange market With the help of diagram.

The price of one currency in terms of another currency is called foreign exchange rate. People demand foreign exchange because, they want to purchase goods and services from other countries, they want to send gifts to abroad, and they want to purchase financial assets of a certain country.

If the demand for imports increases, the foreign exchange demand curve shifts upward or right to the original demand curve. This can be shown in the following diagram.
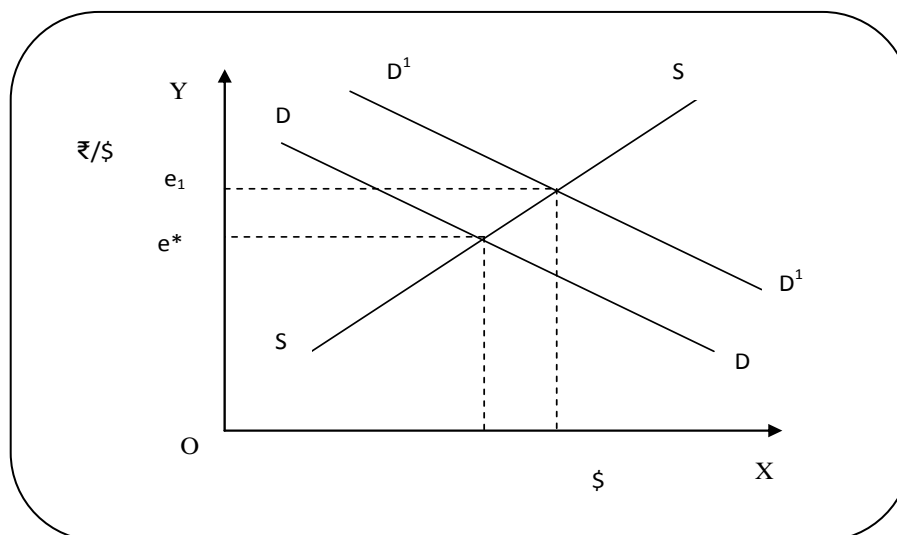
Due to increase in demand for foreign goods and services, demand curve shifted from DD to D^1D^1 and result in a increase in the exchange rate from e* to e_1. Hence e_1 is the new equilibrium. That means we need to pay more rupees for a dollar now (₹50 per $1 to ₹70 per $1). This is called depreciation of domestic currency in terms of foreign currency.

5. Explain the merits and demerits of flexible and fixed exchange rate.

➢ **Fixed exchange rate:** The government fixes the exchange rate at a particular level is called fixed exchange rate.

Merit: In the fixed exchange rate system the government has a credibility to maintain the exchange rate at a level specified. If there is a deficit in the BOP, government will have to intervene to take care of the gap by using of its official reserves.

Demerit: If the people begin to doubt the ability of the government to maintain the fixed rate. This may give rise to speculation of devaluation, finally forcing the government to devalue, it is said to constitute a speculative attack on a currency.

➢ **Flexible exchange rate:** The exchange rate is determined by the market forces of demand and supply is called flexible exchange rate.

Merit: In flexible exchange rate the government do not need to maintain large stocks of foreign exchange reserves. The major advantage of flexible exchange rate is that movements in the exchange rate automatically take care of the surpluses and deficits in the BOP.

Demerit: In the flexible exchange rate the government do not intervene, because the exchange rate which is automatically taken care of by the market. It may create unstable situation.

VI. Answer the following questions in 20 sentences. (Each question carries 6 marks)

1. Write a note on balance of payment.

The record of the transaction in goods, services and assets between residents of a country with the rest of the world for a specified time period typically a year is called balance of payment. There are two main accounts in BPO. They are current account and the capital account.

➢ **Current account:** current account is the record of trade in goods and services and transfer payments. If Receipts are more than payments on current account is called surplus current account. If Receipts are less than the payments on current account is called deficit current account and if the Receipts are equal to the payments on current account is called balanced current account.

Surplus current account	**Balanced current account**	**Deficit current account**
Receipts > Payments	Receipts = Payments	Receipts < Payments

Balance on current account has two components they are   a) Balance of trade (Trade balance).
   b) Balance of invisibles.

The balance of trade is the difference between the value of exports and the value of imports of goods. It is also known as trade balance. Balance of invisibles is the difference between the value of exports and the value of imports of the country. Invisibles include services, transfers and flows of income between different countries.

➢ **Capital account:** Capital account shows all international transaction of assets. For example money, stocks, bonds, government debt, come under debit item of the capital account. On the other hand, sale of assets and foreign direct investment (FDI), foreign institutional investment (FII), external borrowings and assistance come under credit item of the capital account.

There may be surplus, balance and deficit in the balance of payments. If a country has a deficit in its current account, it must finance by selling assets or by borrowing abroad. If BOP is in balance, the current account deficit is financed entirely by international lending without any reserve movements. Totally the balance of payments gives entire clear picture of foreign trade.

2. Briefly explain the foreign exchange market with fixed exchange rates with the help of a diagram.

The government fixes the exchange rate at a particular level is called fixed exchange rate. This can be understood with the help of following diagram.
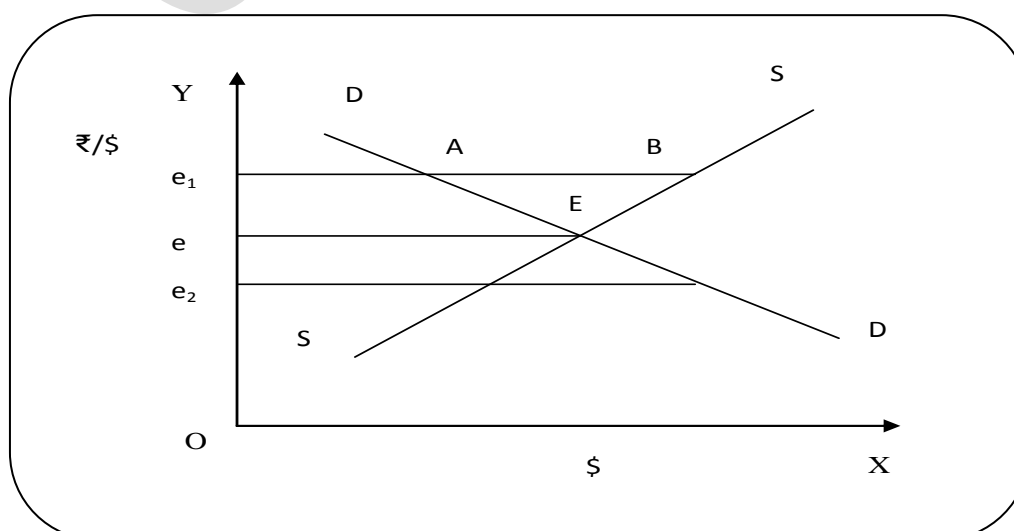
In the above diagram market determined exchange rate is 'e'. However the India wants to encourage exports by fixing a higher exchange rate to ₹ 70 per dollar from ₹ 50 per dollar. Now rupee is available at lower price to foreigners. Thus the new exchange rate set to e_1. At this exchange rate, the supply of dollars exceeds the demand for dollars. It is shown by AB line in the diagram. The RBI intervenes to purchase the dollars for rupees in the foreign exchange market in order to absorb this excess supply.

On other hand if the government is set an exchange rate at a level such as e_2, there would be an excess demand for dollars in the foreign exchange market. To meet this excess demand, the government would have to issue/ withdraw dollars from its past holdings of dollars.

In a fixed exchange rate system, when government increases the exchange rate by reducing the value of domestic currency it is called Devaluation. On the other hand, when the government decreases the exchange rate by making domestic currency costlier it is called Revaluation.

3. Write a short note on the gold standard.

Every country has the value of currency in terms of gold is called gold standard. The gold standard was exist from 1870 to 1914. In this system all currencies were defined in terms of gold, indeed some were actually made of gold.

In gold standard every country had fixed exchange rate and exchange rate determined by its worth in terms of gold. For example, if one unit of currency 'A' was worth of one gram of gold and if one unit of currency 'B' was worth of 2 grams of gold, currency 'B' would be worth twice as currency 'A'.

The rates would fluctuate between an upper and a lower limit, these limits being set by the costs of melting, shipping, and recoining between the two countries. To maintain the official parity each country needed an adequate stock of gold reserves. In gold standard it is believed that the balance or the equilibrium of BOP will be achieved automatically.

For example, one country loses all its stock of gold by importing too much, the stock of gold of the nation went down, the prices of goods and services would fall. Therefore imports would fall and exports rise. Because of increase in exports, inflow of gold rises and the deficit in balance of payment is solved. Therefore it is believed that there is no requirement of tariffs and state action. But several crises caused the gold standard to break down periodically. They are as follows.

a) Demand for gold increased, but supply of gold not increased.
b) Mines were not produced much gold.
c) Silver supplemented gold introducing 'Bimetallism'.
d) Paper currency was not entirely backed by gold.
e) Instead of gold, some countries held the currency of some large countries (USA, UK).

And some other reasons are caused for the breakdown of gold standard.

VIII. Assignment and project oriented question. (Each question carries 5 marks)

1. Name the currencies of any five countries of the following.
USA, UK, Germany, Japan, China, Argentina, UAE, Bangladesh, Russia.

S.N	Countries	Currency
1	USA	US Dollar
2	UK	Pound Sterling
3	Germany	Euro(Mark)
4	Japan	Yen
5	China	Renminbi
6	Argentina	Peso
7	UAE	Diram
8	Bangladesh	Takha
9	Russia	Rubel