1

Introduction to Micro Economics

Simple Economy

An individual performs many activities in his day-to-day life. For Example, going to office, spending time with children, watching TV, etc All the activities performed by an individual can be classified as economic activities and non-economic activities.

Microeconomics	Macroeconomics
Microeconomics studies economic relationships or economic problems at the level of an individual, an individual firm or household or consumer.	Macroeconomics studies economic relationships or economic problems at the level of the economy as a whole.
It is basically concerned with the determination of output and price for an individual firm or industry.	It is basically concerned with determination of aggregate output and general price level in the economy as a whole.

Positive economics study the problem and its related issues which are subject to verification. The positive statements describe what was, what is and what would be under the given set of situations.

Normative economics offers suggestions to solve the problem. The normative statements describe what ought to be.

Economy and its Central Problems

Economy is a system spread over a particular area which reveals the nature and the level of economic activities in that area. It shows how people of the concerned area earn their living.

Types of Economy

Market Economy

Market economy is a free economy. It means that producers are free to decide what, how and for whom to produce. Their decision is based on the demand and supply forces in the market. Self-interest is the prime consideration, and hence there is profit motive behind every economic activity in a market economy.

Centrally Planned Economy

Centrally planned economy is an economy in which all economic decisions are taken by the government or by the central authority. Economic resources are owned by the society and are used in public interest. The social welfare or collective welfare is the prime consideration behind allocation of resources to the production of different goods and services in a centrally planned economy.

Mixed Economy

Mixed economy combines the merits and avoids the demerits of market economy and centrally planned economy. They decide what, how and for whom to produce on the basis of market forces and also on the basis of social considerations.

Economic Problem

Economic problem is the problem of choice arising from the use of limited means to satisfy the various wants.

Central Problems

In every economy, there are three economic problems, they are:

- What to produce?
- How to produce?
- For whom to produce?

What to produce?

Land, labour, capital, machines, equipments and natural means are limited. All demands, of every individual in the economy cannot be satisfied, so society has to decide the commodities which are to be produced and the quantities in which they are to be produced. If we produce one commodity, it could lead to neglecting the production of another commodity. If we assume all factors of production in the economy to be fully absorbed, and still want to increase the production of one commodity, then we need to withdraw resources from the production of other commodities.

How to produce?

'How to produce' means how to organise production. It is the second basic economic problem of resource allocation. It is the central problem concerned with the choice of technique of production. In a developing country such as India, there is always a choice between labour intensive technology and capital intensive technology.

Under labour intensive technology, labour is used more than the capital. It ensures greater employment and social justice. Under capital intensive technology, capital is used more than the labour. It ensures greater efficiency and productivity.

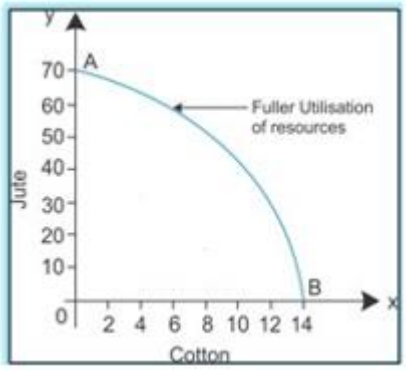
Hence, there is a central problem between the social justice and efficiency in productivity. This problem is concerned with the efficient use of resources which implies more production with low cost. Thus, one needs to decide the efficient technique of production which uses the least amount of scarce resources to provide the same amount of output.

For whom to produce?

'For whom to produce' is the third problem of allocation of resources. This relates to the distribution of national products among the various individuals. It is true that sharing of national product is directly influenced by the income of an individual. People having higher income will definitely possess higher purchasing capacities. Therefore, for proper and equal distribution of goods and services, there should be equality of income among all the people of the society. To achieve this situation, Karl Marx suggested that the distribution of national income should be according to the contributions made by each individual to the total production i.e. the individual must receive income exactly equal to what she produces. Thus, we can see that every economy faces the problem of allocating its national resources to the production of different goods and services and of distributing the produced goods and services among the individuals within the economy.

Production Possibility Curve

Production possibility curve is a curve which shows different combinations of two goods that can be produced with the given amount of resources and a given stock of technology in the economy.



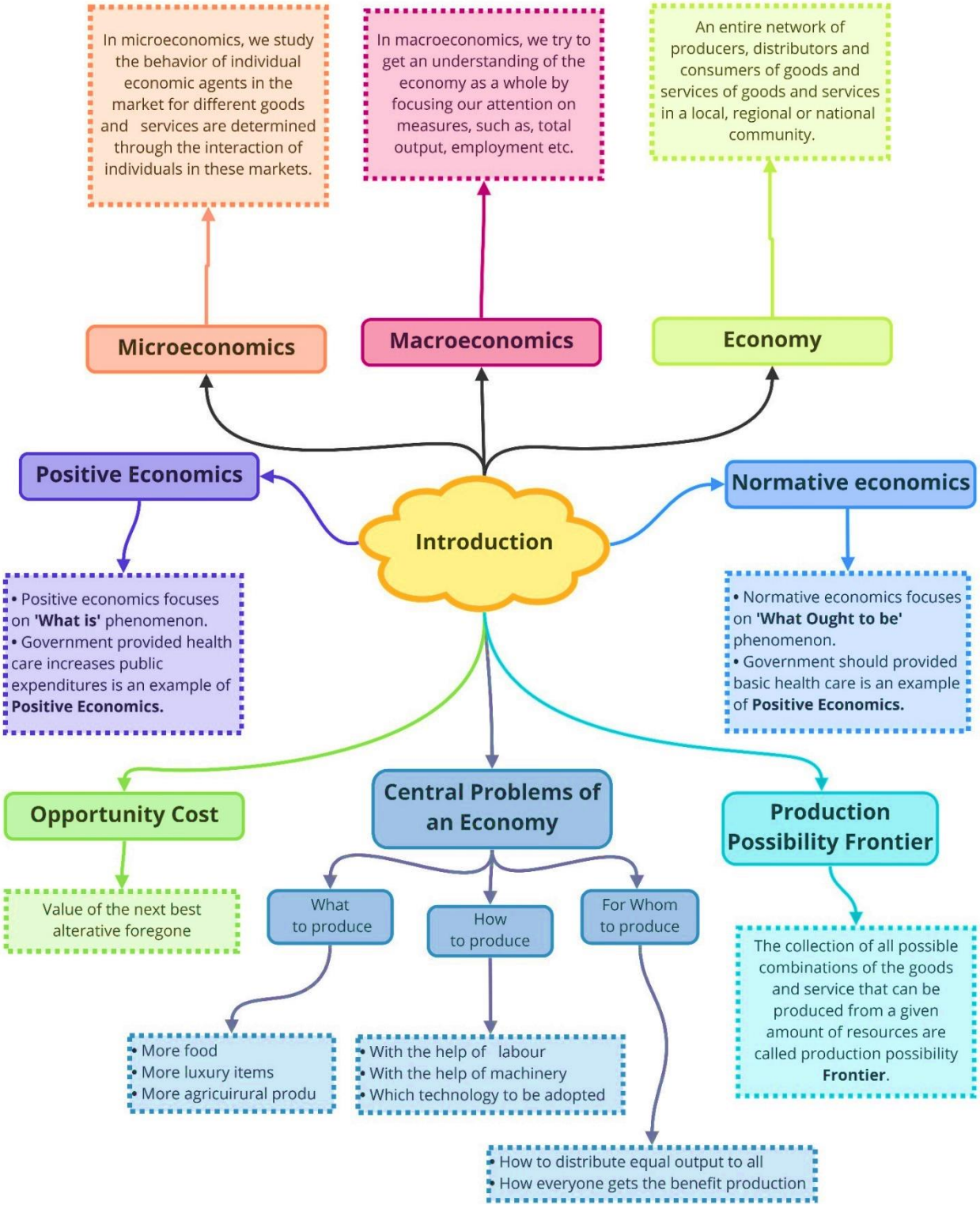
Characteristics of PPC

- Slopes downwards to the right: PPC slopes downwards from left to right. It is because in a situation of fuller utilisation of the given resources, production of both the goods cannot be increased simultaneously. More of commodity A can be produced only with less production of commodity B.

- Concave to the point of origin: It is because to produce each additional unit of commodity A, more and more units of commodity B will have to be sacrificed. Opportunity cost of producing every additional unit of commodity A tends to increase in terms of the loss of production of commodity B. Production will act upon the law of increasing marginal opportunity cost.
- The Marginal Opportunity Cost (MOC) is the rate at which the quantity of output of one commodity is sacrificed to produce one more unit of the other commodity. Hence, MOC is calculated in terms of the loss of output of Y for every additional unit of X produced when resources are shifted from A to B.

  MOC = Unit of one good sacrificed / More units of other good produced = $\Delta A / \Delta B$

Class : 11th Economics (Microeconomics)
Chapter-1 : Introduction



Important Questions

Multiple Choice Questions-

1. Which Economist divided Economics in two branches of micro and macro on the basis of economic activity?
   (a) Marshall
   (b) Ricardo
   (c) Ragnar Frish
   (d) None of these
2. Which of the following is studied under Micro Economics ?
   (a) Individual unit
   (b) Economic Aggregate
   (c) National Income
   (d) None of these
3. Which of the following economic activities are included in the subject-matter of Economics?
   (a) Economic Activities related to Unlimited Wants
   (b) Economic Activities related to Limited Resources
   (c) Both (a) and (b)
   (d) None of these
4. On which base structure of economic problems has been installed?
   (a) Unlimited Wants
   (b) Limited Resources
   (c) Both (a) and (b)
   (d) None of the above
5. 'Micros', which means 'Small' belongs to:
   (a) Arabian word
   (b) Greek word
   (c) German word
   (d) English word
6. Which of the following statement is true?
   (a) Human wants are infinite
   (b) Resources are limited
   (c) Scarcity problem gives birth to choice .
   (d) All of these
7. Which of the following is the salient feature of factors (or resources) ?
   (a) These are limited as compared to wants
   (b) These have alternative uses
   (c) Both (a) and (b)
   (d) None of the above
8. Which is a central problem of an economy ?
   (a) Allocation of Resources
   (b) Optimum Utilisation of Resources
   (c) Economic Development
   (d) All of these
9. Which of the following Is a type of economic activities ?
   (a) Production
   (b) Consumption
   (c) Exchange and Investment
   (d) All of these
10. To which factor, economic problem is basically related to:
    (a) Choice
    (b) Consumer's Selection
    (c) Firm Selection
    (d) None of these
11. Economy may be classified as:
    (a) Capitalist
    (b) Socialist
    (c) Mixed
    (d) All of these
12. Which economy has a co-existence of private and public sectors ?
    (a) Capitalist
    (b) Socialist
    (c) Mixed
    (d) None of these
13. The main objective of a socialist economy is…….
    (a) Maximum production
    (b) Economic freedom
    (c) Earning profit
    (d) Maximum public welfare
14. In which economy decisions are taken on the basis of price mechanism ?
    (a) Socialist
    (b) Capitalist
    (c) Mixed
    (d) All of these

15. The slope of a production possibility curve falls:

(a) From left to right

(b) From right to left

(c) From top to bottom

(d) From bottom to top

Very Short:

1. What are the three central problems of Economy?

2. Give two examples of Micro and Macro Economy.

3. Define Scarcity.

4. A growth of resources in an economy is shown in PP by.

5. What is Production Possibility Frontier?

6. Define marginal rate of transformation.

7. What are the three central problems of an economy?

8. What is the opportunity cost?

9. What do you mean by economizing of resources?

Short Questions :

1. From the scheduled PP evaluate MRT of good X.

Product Possibility	Production of good X units	Production of good Y units
A	0	14
B	1	13
C	2	11
D	3	8
E	4	4

2. Define Normative Economics.
3. What does the problem for whom to produce refer to?
4. What does the opportunity cost mean? Explain with a numerical example.

Long Answer Questions:

1. What is the difference between the planned economy and market economy?
2. Explain the central problem of the choices of products to be produced.

Case Study Question:

1. Read the following hypothetical text and answer the given questions:

   Each economy has scarce resources and will have possibility of being exhausted gradually after a continuous use. Growth of resources, therefore, become a basic problem of the economy. It can achieve this objective through technological advancement. Under-developed countries like India, Pakistan, Thailand etc. have remained poor because of poor growth of their resources. Besides fuller utilization of resources, these countries should try to raise their productive capacities, by exploring further availability of natural resources and discovering better techniques for their use. Moreover, full use of productive capacity is also indispensable for the growth of the economy.

   Since economic theory is classified into Micro and Macro Theory. Microeconomic theory deals with the allocation of resources in the market economy. In this theory, decisions regarding 'what', 'how' and 'for whom' to produce are decided on the basis of price mechanism. Goods are freely bought and sold in the market economy on an agreed price.

   Macroeconomic theory deals with the fuller and efficient use of resources. It also deals with the growth of resources and problems relating saving, investment, inflation, unemployment etc. Development economics deals with the problem of growth of resources.

   1. Which is a central problem of an economy?
      (a) Allocation of resources
      (b) optimum utilisation of resources
      (c) Economic development
      (d) all of these
   2. To which factor, economic problem is basically related to:
      (a) Choice
      (b) Consumer selection
      (c) firm selection
      (d) none of these
   3. What measures have been followed by India to raise its productive capacities by exploring:
      (a) Technique
      (b) Natural resources
      (c) Discovering better technique
      (d) all of these
   4. Macro Economics deals with the _____
      (a) Allocation of resources
      (b) Aggregate use of resources
      (c) both (a) & (b)
      (d) none of these

2. Read the following hypothetical text and answer the given questions:

In reality, all economies are mixed economies where some important decisions are taken by the government and the economic activities are by and large conducted through the market. The only difference is in terms of the extent of the role of the government in deciding the course of economic activities. In the United States of America, the role of the government is minimal. The closest example of a centrally planned economy is the China for the major part of the twentieth century. In India, since Independence, the government has played a major role in planning economic activities. However, the role of the government in the Indian economy has been reduced considerably in the last couple of decades.

1. Whether the following statement is True or false:

"A centrally planned economy has been followed by India in the last two decades".

2. Economy may be classified as:

(a) Capitalist

(b) socialist

(c) mixed

(d) all of these

3. Which economy has a co-existence of private and public sectors?

(a) Capitalist

(b) Mixed

(c) Socialist

(d) none of these

4. In the USA, the role of the government is minimal, due to:

(a) Capitalist economy

(b) socialist economy

(c) mixed economy

(d) all of these

Assertion Reason Question:

1. In these questions, a statement of assertion followed by a statement of reason is given. Choose the correct answer out of the following choices.

(a) Both Assertion (A) and Reason (R) are true, and Reason (R) is the correct explanation of Assertion (A)

(b) Both Assertion (A) and Reason (R) are true, and Reason (R) is not the correct explanation of Assertion (A)

(c) Assertion (A) is true, but Reason (R) is false.

(d) Assertion(A) is false, but Reason (R) is true.

Assertion (A): 'Both, microeconomics and macroeconomics have same degree of aggregation'.

Reason (R): Micro economics involves limited degree of aggregation and Macroeconomics involves the highest degree of aggregation.

2. In these questions, a statement of assertion followed by a statement of reason is given. Choose the correct answer out of the following choices.

(a) Both Assertion (A) and Reason (R) are true, and Reason (R) is the correct explanation of Assertion (A)

(b) Both Assertion (A) and Reason (R) are true, and Reason (R) is not the correct explanation of Assertion (A)

(c) Assertion (A) is true, but Reason (R) is false.

(d) Assertion(A) is false, but Reason (R) is true.

Assertion (A): Utility is directly linked with the usefulness of a commodity.

Reason (R): A commodity may be useful, yet it may have utility for a particular person. For example, chewing tobacco is harmful for health, yet many people derive high degree of utility from it.

Answers Key

MCQ answers:

1. (d) None of these
2. (d) None of these
3. (c) Both (a) and (b)
4. (c) Both (a) and (b)
5. (b) Greek word
6. (c) Scarcity problem gives birth to choice
7. (c) Both (a) and (b)
8. (d) All of these
9. (d) All of these
10. (a) Choice
11. (d) All of these
12. (c) Mixed
13. (d) Maximum public welfare
14. (b) Capitalist
15. (c) From top to bottom

Very Short Answers:

1. The three central problems of Economy are.
   - What to Produce
   - How to Produce
   - For whom to Produce
2. The two examples of Micro economy are Individual supply and individual demand and the two examples of Macro economy are aggregate supply and aggregate demand.
3. Scarcity refers to the deficit of resources as compared to the demand.
4. Rightward Shift
5. Production Possibility Frontier is the curve that depicts the maximum output possibility for two combination goods that are produced when the resources are fixed at a given period of time.
6. Marginal Rate of Production MRT is the ratio of a particular product sacrificed to manufacture another product. MRT= ▲y / ▲x
7. The three central problems of an economy are (a) What to produce? (b) How to produce (c) For whom to produce?
8. Opportunity Cost is the next best alternative foregone.
9. Economizing means making the best of the available resources.

Short Answers :

1.

Production of good X units	Production of good Y units	MRT= ″y /″x
0	14	-
1	13	1 : 1
2	11	2 : 1
3	8	3 : 1
4	4	4 : 1

2. Normative Economics is a theory that understands what an actual economy should be under an ideal circumstances as compare to what actually it is. It is mostly based on judgmental analysis and a statement 'what ought to be'.
3. The problem for whom to produce refers to a particular section of people who will consume the end product. Here, the problem of choices arises because the manufacturers are unable to produce each product in huge quantity to satisfy everybody's need. So, the consumers' have to make choices between which product is more important to them, so the limited resources can be distributed rationally.
4. Opportunity Cost is something when an individual has to give up something to achieve or acquire something else. In microeconomy, the opportunity cost is also known as alternative cost and is also used in calculating cost benefits or analysing a project in terms of best alternative while making a choice.

   For example, Dev has three career offers to choose from. Job X has a salary offer of Rs 60000, job Y offer is Rs. 70000 and job Z offer is Rs. 80000. So, in this case, out of three offers, Dev has to choose what is best for him. If Dev opts for job offer Z the next best alternative not chosen is job offer Y and thus the opportunity cost is Rs 70000.

Long Answers:

1. Planned Economy – A planned economy has one person or a group who takes a decision on production, investment, pricing, and distribution, etc, and produces products and services that are pre-planned. The planned economy is a centrally planned economy and the decisions are basically taken by the government. In another term, the

planned economy is also known as a command economy because everybody has to follow one person, his command and guidelines. The aim of the planned economy is to increase production by making sure that everything required is manufactured and that everyone's requirements are fulfilled.

Most assets are controlled and owned by the state.

Market Economy- A market economy is controlled by external authority and may have one individual who might decide what to produce, whom to produce, and how to get the things done. This type of economy keeps changing according to the demand and supply and taste of a consumer. The main issue in the economy is that a company might refuse to manufacture goods if it's unprofitable for them. Most assets are controlled and owned privately.

Few differences between the planned economy and market economy are as follows.

- The planned economy operates according to the structure planned by the government. Whereas, the market economy operates based on market demand.
- A decision on production, investment, pricing, and distribution, etc are taken by the government whereas in the market economy it in the free market.
- A planned economy doesn't identify consumer needs, supply, and shortages. Whereas, in a market economy, demand and supply are based on those factors.

2. The basic economic activities are based on the production, allocation, and distribution of goods and services. These are the major problem in the economy and other difficulties revolve around them. Allocation of goods and services relates to a problem of assigning the inadequate supplies in such a way so that it fulfills that maximum number of the consumer.

   As the demand for the insufficient goods is more than that of the supply it is important to utilize it in the most effective way. In other words, an economy allocates its goods and resources and pick from a different possible package of goods (what to produce), select from various ways of production (how to produce), and therefore decide who will utilize the product (for whom to produce).

Case Study Answer:

1. **Answer:**

   1. (d) 2. (a) 3. (d) 4. (b)

2. **Answer:**

   1. False 2. (d) 3. (b) 4. (a)

Assertion Reason Answer:

1. (d) Assertion (A) is false, but Reason (R)is true.
2. (b) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A).

2

Consumer Behaviour

The Consumer's Budget

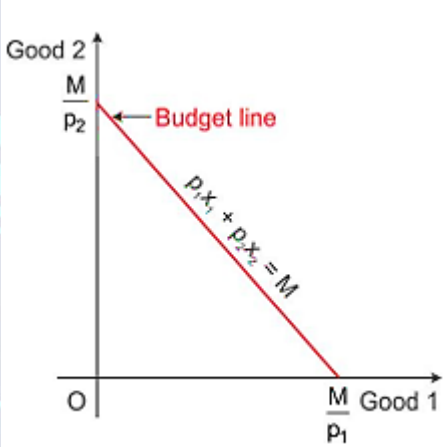
The consumer's budget is the real purchasing power of consumer from which he/she can purchase the certain quantitative bundles of two goods at a given price.

Budget set

Budget set refers to attainable bundles of a set of two goods, given the prices of goods and income of the consumer.

Budget line

A budget line shows set of bundles of good x_1 and good x_2 which a consumer can buy at the given income M and the prices of two goods p_1 and p_2.



Quantity of good 1 is measured on the X-axis and the quantity of good 2 is measured on Y-axis. Any point in the given diagram shows the bundle of two goods. The budget set is represented in the figure which consists of all points on or below the straight line having the equation $p1x1 + p_2x_2 = M$. This line consists of all bundles whose cost is equal to M. This line is called budget line. This budget line is drawn on the assumptions that the consumers budget is Rs 30, price of a good 1 = Rs 2 per unit and price of good 2 = Re 1 per unit. Accordingly, maximum 15 units of good 1 are purchased when entire budget is spent on good 1 and maximum 30 units of good 2 can be purchased when entire amount is spent on good 2.

Equation of the budget line $p_1x_1 + p_2x_2 = M$

Slope of the budget line = $-p_1/p_2$

i.e. the ratio of prices of two commodities

Preferences of the Consumer

Consumer's behaviour is governed by monotonic preferences. It means that a rational consumer always prefers more of a good as it offers the consumer a higher level of satisfaction.

Indifference curve

An indifference curve is the curve which represents all those combinations of two commodities which give the same level of satisfaction to a consumer. It slopes downward because an increase in the amount of good 1 along the indifference curve is associated with a decrease in the amount of good 2 as the preferences are monotonic.

Marginal Rate of Substitution (MRS) means the rate at which the consumer is willing to substitute one commodity for the other commodity.

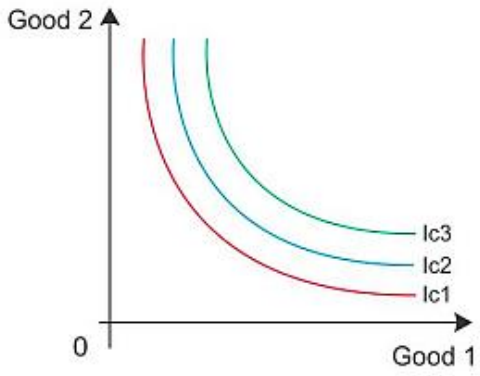
MRS_{xy} = Quantity of the good sacrificed / Quantity of the good obtained.

Properties of indifference curves

- Higher indifference curve offers higher preferences to consumers
- ICs are convex to the origin because MRS tends to diminish
- ICs are sloped downwards or negatively sloped
- ICs never touch or intersect each other

Indifference map

Indifference map refers to a set of indifference curves corresponding to different income levels of the consumer. An indifference curve which is to the right shows a higher level of satisfaction to the consumer. Here, IC_3 shows higher level of satisfaction than IC_2. Thus, the indifference curve relates to a higher level of income of the consumer.



Utility

Utility is the amount of satisfaction which a consumer derives from the consumption of a commodity. A utility function means assigning numbers to all the available bundles. Let us consider any two bundles, if one is preferred to the other, then the preferred bundle gets assigned a higher utility and if the two bundles are indifferent, they are assigned the same utility number.

Equality of the marginal rate of substitution and the ratio of prices

The optimum bundle of the consumer is located at the point where the budget line is tangent to an indifference curve. When the budget lines is tangent to an indifference curve at a point, the absolute value of the slope of the indifference curve and of the budget line are equal at that point i.e. MRS is equal to the price ratio. The slope of the budget line is the rate at which the consumer is able to substitute one good for the other in the market. At the optimum, the two rates should be the same. Thus, a point at which the MRS is greater, the price ratio cannot be the optimum as well as when the MRS is less then the price ratio cannot be the optimum.

Concept of Demand

Demand for a good refers to the desire to buy a good, backed with sufficient purchasing power and the willingness to spend.

Individual Demand and Market Demand

Individual demand for a commodity is the quantity of a commodity which an individual household is willing to buy at a particular price during a specific period.

Market demand is the horizontal summation of individual demands in the market. It indicates various quantities of a commodity which all consumers in the market are willing to buy at different possible prices of that commodity during a specific period.

Law of Demand

The Law of Demand states that while other things remaining constant, the quantity of a good demanded increases with a fall in the price and diminishes when the price increases.

Main Assumptions of the Law of Demand

- Prices of related goods do not change
- Incomes of consumers do not change
- Tastes and preferences of consumers remain constant
- No expectations from the consumer to make a change in the price of a commodity in the near future

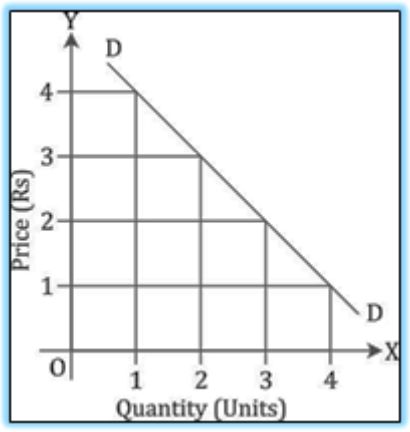
Demand Schedule and Market Schedule

Demand schedule is a chart or a table showing the quantities of a commodity, demanded at various prices.

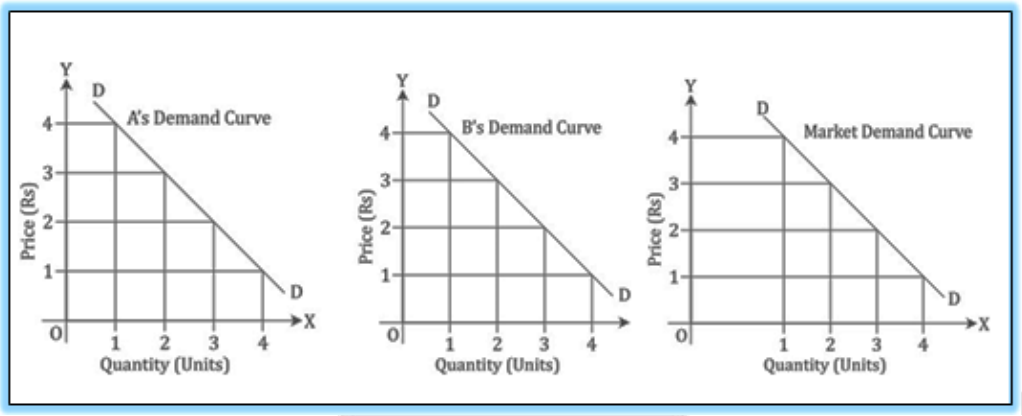
Market demand schedule shows the total demand for the commodity in the market at various prices.

Individual Demand Curve and Market Demand Curve

The individual demand curve is a curve showing different quantities of a commodity which one particular buyer is willing to buy at different possible prices of the commodity at a point of time. In the diagram, the quantity of a commodity is given on the x-axis and the price on the y-axis. DD is the demand curve representing the individual demand schedule. The demand curve slopes downward from left to right, indicating an inverse relationship between the price and the quantity demanded.



The market demand curve is the horizontal summation of the individual demand curves. It indicates various quantities of a commodity which all consumers in the market are willing to buy at different possible prices ofthe commodity at a point of time. The diagram below shows that the market demand curve represents the market demand schedule assuming two consumers A and B in the market. The market demand curve also slopes downward indicating an inverse relationship between the price and quantity demanded.



Why does the demand curve slopes downward to the right?

The demand curve slopes downward because more goods are purchased in response to a fall in price. Thus, there is a inverse relationship between the price of a good and its quantity demanded.

Factors responsible for the downward sloping demand curve:

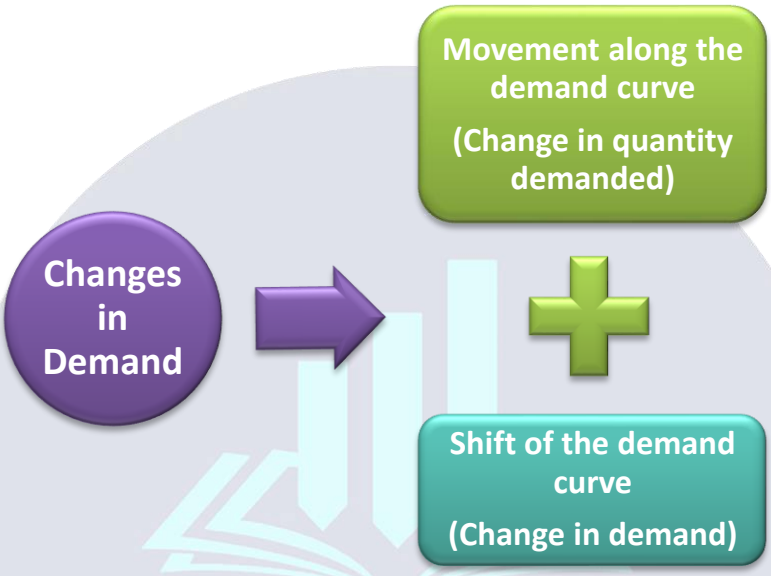
- Law of diminishing marginal utility: The additional utility which the consumer derives from the additional consumption of any commodity is known as marginal utility. A consumer gets maximum satisfaction from the consumption of a commodity when the price paid for the commodity is just equal to its marginal utility. If the consumer consumes more of that commodity at any given time period, the marginal utility will gradually fall. This is called the law of diminishing marginal utility.
- Substitution effect: Substitution of one commodity for the other when it becomes relatively cheaper
- Income effect: A change in quantity demanded when real income of the buyer changes as a result of change in price of the commodity.

Exceptions to the Law of Demand

- **Giffen effect:** A typical inferior commodity consumed by poor people may display an odd behaviour. When the price of such a commodity rises, the poor people may cut down on their purchases of other expensive items and increase their purchases of this commodity.
- **Bandwagon effect:** The bandwagon effect means that the consumer's demand for a commodity is influenced by the taste and preference of the social class to which the consumer belongs.

Changes in Demand

Demand for any commodity depends on several factors besides its price. These factors were categorised as price of the commodity in category 1 and all factors other than price in category 2. Based on these categories of factors influencing demand, changes in demand are divided into change in quantity demanded and change in demand.



Change in Quantity Demanded and Change in Demand:

Change in quantity demanded is the movement along the demand curve i.e. the extension of demand caused by a decrease in the price of the same good and the contraction of demand caused by an increase in the price of the same good.

Change in demand means the shift in the demand curve i.e. the decrease in demand or the backward shift in the demand curve caused by a change in factors other than the price of the good and an increase in demand or a forward shift in the demand curve caused by a change in factors other than the price of the good.

Causes behind Shifts of Demand

- **Change in income:** If there is an increase in income of the consumers, they will usually buy more of any particular commodity and the demand curve will shift to the right. A fall in income will usually shift the curve to the left. This is applicable to most goods which are normal goods.
- **Price of other commodities:** If the price of substitute goods falls, consumers will be attracted to the other goods and the demand for the good to consume will fall at any given price. Hence, the demand curve will shift to the left. Likewise, a rise in the price of a substitute will shift the demand curve to the right. If the price of the complementary goods falls, consumers will buy more of the complementary goods and the demand for the good to consume will also rise at any given price. Hence, the demand curve will shift to the right. Similarly, a rise in the price of complementary goods will shift the demand curve to the left.
- **Consumer preference:** If the producers spend more money on a product advertisement at any given price, consumers will demand the commodity in greater quantities than before. Hence, the demand curve for the commodity will shift to the right. Likewise, if consumers develop distaste for a commodity, the demand curve will shift to the left.

Elasticity of Demand

The elasticity of demand measures the responsiveness of the quantity demanded for a good to a change in its price, price of other goods and changes in the consumer's income. Alfred Marshall was the first economist to develop the concept of price elasticity of demand as the ratio of a relative change in quantity demanded to a relative change in price.

Degrees of Price Elasticity of Demand:

- **Perfectly inelastic demand:** The demand curve will be parallel to the y-axis. If the price increases or decreases, the quantity demanded remains fixed i.e. ed = 0.
- **Inelastic demand:** The slope of an inelastic demand curve is steep when a large change in the price does not bring about a significant change in the demand i.e. ed < 1.
- **Unit elastic demand:** The demand curve will be a rectangular hyperbola as it extends to both axes.
- Percentage change in the demand is equal to percentage change in the price i.e. ed = 1.
- **Elastic demand:** The demand curve is a flat curve when the percentage change in the demand is much greater than the percentage change in price i.e. ed > 1.
- **Perfectly elastic demand curve:** The demand curve is parallel to the x-axis. A small change in the price causes an infinitely large change in the amount demanded i.e. ed ∞ 1.

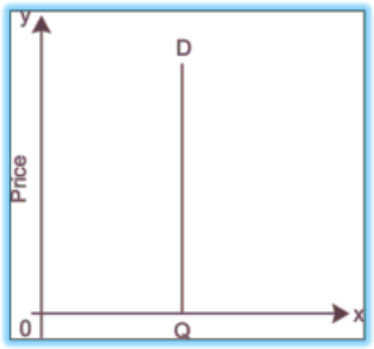


Fig 1: Perfectly Inelastic Demand

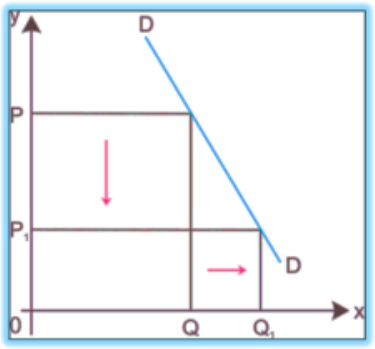


Fig 2: Inelastic Demand

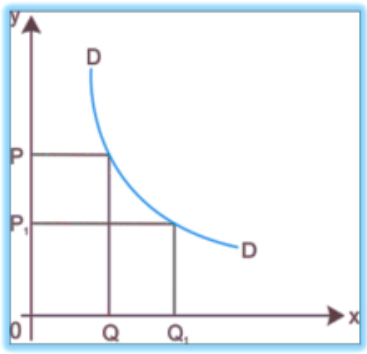


Fig 3: Unit Elastic Demand

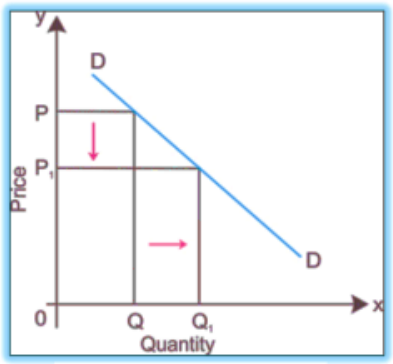


Fig 4: Elastic Demand

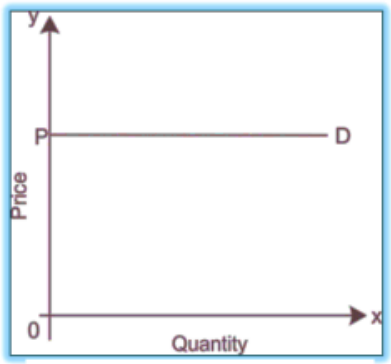


Fig 5: Perfectly Elastic Demand

Factors Affecting Elasticity of Demand

Factors	Nature of the Factor	Elasticity of Demand
• Number of commodity	○ Necessary items ○ Luxury items	○ Relatively inelastic ○ Relatively elastic
• Number of substitutes	○ Many ○ Few	○ Relatively elastic ○ Relatively inelastic
• Variety of uses	○ Many ○ Few	○ Relatively elastic ○ Relatively inelastic

• Income of the purchaser	○ High income group ○ Low income group	○ Relatively inelastic ○ Relatively elastic
• Habit of the purchaser in consuming any commodity	○ Habituated ○ Not habituated	○ Relatively inelastic ○ Relatively elastic
• Durability of the goods	○ Durable ○ Non-durable	○ Relatively inelastic ○ Relatively elastic
• Importance of the commodity in consumer's budget	○ Insignificant share ○ Significant share	○ Relatively inelastic ○ Relatively elastic
• Possibility of postponing consumption	○ Possible ○ Impossible	○ Relatively elastic ○ Relatively inelastic
• Price level	○ High ○ Low	○ Relatively elastic ○ Relatively inelastic
• Time	○ Short-run ○ Long-run	○ Relatively inelastic ○ Relatively elastic

Method of Measurement

Total expenditure method, proportionate method and geometric method are the three different methods to measure the price elasticity of demand.

The price elasticity of demand for a good is the percentage change in demand for the good divided by the percentage change in its price. Price elasticity of demand is a pure number and it does not depend on the units in which the price of the good and the quantity of the good are measured. Price elasticity of demand is a negative number as the demand for a good is negatively related to the price of a good. ep = Percentage change in the demand for the good/Percentage change in the price of the good.

$$e_p = \frac{\Delta Q / Q \times 100}{\Delta P / P \times 100} \text{ (or) } e_p = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

Where ep = Price elasticity of demand, ΔQ Change in demand,

ΔP Change in price, Q original demand and P original price.

Absolute changes in price and quantity are measured in original units, whereas relative changes are not based on units of measurement. They are calculated as percentage changes in price and quantity.

- The total expenditure method measures the elasticity of demand. The changes in expenditure with a change in the price of a good are measured by this method. Three possible situations in this method:
- If a rise or fall in the price of a good has no change in its total expenditure, then the elasticity of demand is unitary.
- If with a fall in the price of a good, the total expenditure increases, and if with a rise in the price of a good, the total expenditure decreases, then the demand for this good is greater than unitary elastic.
- If with a fall in the price of a good, the total expenditure decreases, and if with a rise in the price of a good, the total expenditure increases, then the demand for this good is less than unitary elastic.

Importance of Elasticity of Demand

The concept of elasticity of demand has been applied in a variety of fields in Economics such as price setting, wage bargaining, determining the international terms of trade, indirect taxation and devaluation policy.

Types of Elasticity of Demand

- The price elasticity of demand for a good is the percentage change in the demand for the good divided by the percentage change in its price.
- ep = Percentage change in the demand for the good/Percentage change in the price of the good

- The income elasticity of demand shows the tendency in quantity demanded for any commodity because of 1% change in the money income of the consumer.
- ed = Percentage change in quantity demanded/Percentage change in money income
- The geometric method measures the elasticity of demand at different points on the demand curve and is also known as the point method of measuring the elasticity of demand.
- eg = Lower segment of the demand curve/Upper segment of the demand curve
- The cross elasticity of demand measures the responsiveness of demand of a commodity to a change in the price of other related commodity.
- ec = Percentage change in demand of commodity X / Percentage change in price commodity Y

Class : 11th Economics (Microeconomics)
Chapter-2 : Theory Of Consumer Behaviour

Consumer's Equilibrium & Demand

Consumer's Equilibrium

Budget Line
Shows all the combinations of two commodities that a consumer can afford at given market prices and within the particular income level.

Budget Set
Set is the set of bundles of goods an agent can afford

The Consumer Budget

Condition of Consumer Equilibrium
- $MRSxy = \frac{MUx}{MUy} = \frac{Px}{Yy}$
- Indifference curve should be convex to origin.

Law of Diminishing marginal Utility
The law of diminishing marginal utility is a law of economics stating, that as a person increases consumption of a product, there is decline in the marginal utility that person derives from consuming each unit.

Condition of consumer Equilibrium using marginal Utility
- Marginal utility of last rupee spent on each commodity is same.
- Marginal utility fails as **consumption** increases.

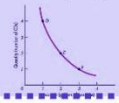
Consumer Equilibrium through Indifference curve Analysis

Preference of the Consumer

Indifference Curve

Meaning
A graph that shows a combination of two goods that give a consumer equal satisfaction and utility thereby making the consumer indifferent.

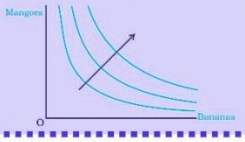
Shape of Indifference Curve
- Convex to origin
- Downward sloping.



Marginal Utility
The benefit gained by consuming one additional unit of product or service.

Utility
Utility is a measure of preferences over some set of goods and services. It represents satisfaction experienced by the consumer from a good.

Indifference Map
The graph representation of two or more indifference curves showing the several combination of different quantities of commodities, which consumer consumes



Demand analysis

Demand

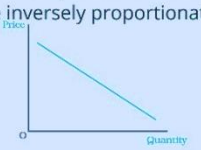
Meaning
Quantities of a commodity or a service that people are willing and able to buy at various prices

Measurment
$e_D = \frac{\text{percentage change in demand for the good}}{\text{percentage change in the price of the good}}$

Price Elasticity of Demand

Factor Affecting
- Number of Close Substitutes,
- Switching Cost,
- Degree of necessity,
- Habits of Consumers.

Demand Curve & Low of Demand
Law of demand states that the demand and price of a commodity are inversely proportionate



Shift in Demand curve
If the prices of other goods, the consumer's income and her tastes and preferences change, demand curve shifts leftwards or rightwards

Forms

Perfect Elastic
ed =∞, Does exist in real life

Perfect Inelastic
ed =0 e.g., Demand for rare medicine.

Unitary Elastic
ed =1, There is no perfect example of it. Close example is Clothing.

Relatively Elastic
ed >1, e.g., furniture, motor vehicles, etc.

Relatively Inelastic
ed <1, e.g., gasoline, salt, food, etc.

Important Questions

Multiple Choice Questions-

1. Who gave the cardinal concept of utility?
   (a) Marshall
   (b) Pigou
   (c) Hicks
   (d) Samuelson
2. Consumer's behaviour is studied in:
   (a) Micro Economics
   (b) Macro Economics
   (c) Income Analysis
   (d) None of these
3. Which of the following statement is true ?
   (a) Utility means want-satisfying power
   (b) Utility is a function of intensity of desire
   (c) Desire of consumption gives birth to utility
   (d) All of these
4. Which is the First Law of Gossen?
   (a) Law of Demand
   (b) Law of Diminishing Marginal Utility
   (c) Law of Equi-marginal Utility
   (d) Consumer's Surplus
5. Which of the following is a characteristic of utility ?
   (a) Utility is a psychological phenomenon
   (b) Utility is subjective
   (c) Utility is a relative concept
   (d) All of these
6. How we calculate marginal utility ?
   (a) $\Delta TU/\Delta Q$
   (b) $\Delta MU/\Delta Q$
   (c) $\Delta Q/\Delta TU$
   (d) $\Delta Q/\Delta MU$
7. When TU becomes maximum, MU is:
   (a) Positive
   (b) Negative
   (c) Zero
   (d) None of these
8. Which of the following is true ?
   (a) TU increases till MU is positive
   (b) TU is maximum when MU is equal to zero
   (c) TU declines when MU is negative
   (d) All of these
9. Who basically propounded the concept of Law of Equimarginal Utility ?
   (a) Marshall
   (b) Gossen
   (c) Ricardo
   (d) J. S. Mill
10. In difference curve is:
    (a) Convex to the origin
    (b) Concave to the origin
    (c) Both (a) and (b) true
    (d) All of these false
11. The ability of satisfying human want in a goods is called its:
    (a) Productivity
    (b) Satisfaction
    (c) Utility
    (d) Profitability
12. Slope of budget line or price line is:
    (a) $-PxPy$
    (b) $-PyPx$
    (c) $+PxPy$
    (d) $+PyPx$
13. Utility is related to:
    (a) Usefulness
    (b) Morality
    (c) Satisfaction of human wants
    (d) All the above
14. Utility can be measured by:
    (a) Money
    (b) Exchange of goods
    (c) Weight of the good
    (d) None of these
15. Law of Equi-marginal utility is called:
    (a) Law of increasing utility
    (b) Law of diminishing utility
    (c) Law of substitution
    (d) None of these

Very Short:

1. How is total utility derived from the marginal utility?

2. An individual bought 50 units of a product at Rs. 4 per unit. When the price falls by 25% it demand rises to 100 unit. Find the price elasticity of demand.
3. Which curve shows the various combination of two products that give the same amount of satisfaction to the consumer?
4. Define Utility.
5. State the law of equi-marginal utility.
6. What will be the MU when TU is maximum?
7. What is the reason behind a convex indifference curve?
8. Which direction the indifference curve slope?
9. What is a consumer surplus?
10. What is the point of satiety?

Short Questions:

1. Distinguish between 'increase in demand' and 'increase in quantity demanded' of a commodity.
2. Given price of a good, how does a consumer decide as to how much of that good to buy?
3. Explain how the demand for a good is affected by the price of its related goods? Give examples.
4. Distinguish between normal goods and inferior goods. Give example also.
5. Explain any four factors that affect price elasticity of demand.
6. Define marginal utility. State the law of diminishing marginal utility.
7. If a good can be used for many purposes, the demand for it will be elastic. Why?
8. "If a product price increases, a family's spending on the product has to increase." Defend or refute.
9. Suppose there are 30 consumers for a good, having identical demand function: d(p) =10-3P for any price less than or equal to 10/3 and d(p)=0 for any price greater than 10/3. Write the market demand function.
10. How would you comment on the elasticity of demand when 8% decrease in price of a

Long Questions:

1. Is the demand for the following elastic, moderate elastic, inelastic? Give reason.
   (a) Demand for petrol
   (b) Demand for textbooks
   (c) Demand for cars
   (d) Demand for milk
2. Explain four determinants of demand for a commodity.
3. Describe the assumption which is made to determine the consumer's equilibrium position.
4. Explain relationship between total utility and marginal utility with the help of a schedule.
5. Given e_D = - 0.02, and percentage increase in price = 20%, find change in expenditure on the commodity.

Answers Key

MCQ Answers:

1. (a) Marshall
2. (a) Micro Economics
3. (d) All of these
4. (b) Law of Diminishing Marginal Utility
5. (d) All of these
6. (a) ΔTU/ΔQ
7. (c) Zero
8. (d) All of these
9. (c) Ricardo
10. (a) Convex to the origin
11. (c) Utility
12. (a) –PxPy
13. (d) All the above
14. (a) Money
15. (c) Law of substitution

Very Short Answers:

1. The total utility is the total sum of marginal utilities of different unit of goods.

   TUn = MU1 + MU2 + MU3……..MUn
2. Elasticity of demand is 4.
3. Indifference Curve
4. The "Utility" in economics determines the satisfaction received or expected to be acquired from the consumption of product and services.

5. The law of equi-marginal utility refers to a balanced position where a consumer distributes his income between different goods in such a way that the value derived from the last rupees is the same as the first one.
6. The MU will be zero when TU is maximum.
7. The reason behind a convex indifference curve is the diminishing marginal rate of substitution.
8. The indifference curve slopes downward to the right.
9. Consumer surplus is defined as the difference between what the consumer wants to pay for a product and what he actually pays.
10. The point of satiety is when the marginal utility becomes zero.

Short Answers:

1. When demand increases at given price then it is called 'increase in demand'. On the other hand, when demand increases by decrease in the price of a commodity then it is called increase in quantity demand.
2. Consumer purchases up to the point where marginal utility is equal to the price (MU=P). So long as marginal utility is greater than price, he keeps on purchasing. As he makes purchases MU falls and at a particular quantity of the good MU becomes equal to price. Consumer purchases up to this point.
3. Related goods are either substitutes or complementary

   Substitutes Goods: When price of a substitute falls, it becomes cheaper than the given good. So the consumer substitutes it for given good will decrease. Similarly, a rise in the price of substitute will result in increase in the demand for given good.

   For example: ***Tea and Coffee.***

   Complementary Goods: When the price of a complementary good falls its demand rises and the demand for the given good will increase. Similarly when price of complementary good increases, then demand for given good decreases.

   For example: ***Car & Petrol.***
4. **Normal Goods:** These are the goods the demand for which increases as income of the buyer rises. There is a positive relationship between income and demand or income effect is positive.

   Example: ***Rice, Wheat***

   Inferior Goods: These are the goods the demand for which decreases as income of buyer rises. Thus, there is negative relationship between income and demand or income effect is negative.

   Example: ***coarse grain, coarse cloth.***
5.
   1. **Nature of Commodity**: Necessaries like Salt, Kerosene oil etc. have inelastic demand and luxuries have elastic demand.
   2. **Availability of substitutes**: Demand for goods which have close substitutes is relatively more elastic and goods without close substitutes have less elastic demand.
   3. **Different uses**: Commodities that can be put to different use have elastic demand for instance electricity has different uses.
   4. **Habit of the consumer**: Goods to which consumers become habitual will have inelastic demand.

   Examples – ***Liquor and Cigarette.***
6. **Marginal Utility**: It is addition more to the total utility as consumption is increased by one more unit of the commodity.

   Law of Diminishing Marginal utility: It states that as consumer consumes more and more units of a commodity, the utility derived from each successive unit goes on decreasing. According to this law TU increases at decreasing rate and MU decreases
7. If a good can be used for many purposes , the demand for it will be more elastic because with a decrease in its price it is put to several uses and with a rise in its price it is withdrawn from its many existing uses. So that, there is a considerable change in demand in response to some change in price.
8. When product price increases, expenditure on the commodity will not increase in the situation when Ed>1 (elasticity of demand is greater than unity). It will increase only in situation when Ed<1. In a situation when Ed=1. Expenditure will remain constant, even when prices rise.
9. Market demand function is simply a horizontal summation of individual demand functions. Since demand function for all the 30 consumers is identical, we can write market demand simply as 'individual demand function multiplying by a factor of 30'.

Thus: Individual demand function:

D(p)= 10-3P

Market demand function:

Md(p)=10 x 30 – 3 (30)P

= 300-90 P.

commodity causes 2% increase in expenditure of the commodity?

10. Elasticity of demand must be greater than unity (implying a situation of elastic demand) when expenditure on the commodity responds inversely to any change in price of the commodity.

Long Answers:

1.

(a) The demand for petrol is moderately elastic as when the cost of petrol rises, the customers will decrease the use of it.

(b) The demand for textbooks is inelastic because even if the price rises the demand will never change.

(c) The demand for cars is elastic as it is a luxury good so when the price of a car goes up, the demand for it comes down

(d) The demand for milk is elastic because when the price of the milk increases the consumer starts taking less quantity of milk.

2. The four determinants of demand for a commodity are mentioned below.

- **Price of Commodity:** When the cost of the good increases the demands of it decreases and vice-versa.
- **Income of the consumer:** When the income of a customer increases, the demand for normal goods also increases and vice-versa.
- **Price of related goods:** In a complementary product, demand increases with the decrease in the price of complementary goods. In terms of a substitute, the demand for goods decreases with the fall in the price of other substitute goods.
- **Taste and preference of customer:** With the change in people's taste and liking demand increases and with the decrease in taste demand decreases.

3. The assumption which is made to determine the consumer's equilibrium position are mentioned below.

- **Rationality:** The consumer has a rational behavior, they want to consume maximum from his given income and price
- **Utility in Ordinal:** It is assumed that the consumer ranks his performances according to that satisfaction from each combination of products.
- **The Consistency of Choice:** It is also assumed that the customer's choices are consistent.
- **Perfect Competition:** The perfect competition in the market form in which large number of sellers are selling homogenous product.
- **Total Utility:** This depends on the total quantities of product consumed by the consumer.

4.

Quantity (Units)	Total utility	Marginal utility
0	0	—
1	8	8
2	14	6
3	18	4
4	20	2
5	20	0
6	18	–2

1. As long as MU is positive, TU increases.
2. When marginal utility is equal to zero then total utility is maximum.
3. When marginal utility is negative; Total utility starts diminishing.

5. $\frac{\Delta q}{p} \times 100 = 20$

↑

Percentage change in price

$e_D = -0.02$, so that

$$\frac{\frac{\Delta q}{p} \times 100}{\frac{\Delta p}{p} \times 100} = -0.02$$

OR

$$\frac{\frac{\Delta q}{q} \times 100}{20} = -0.02$$

OR

$$\frac{\Delta q}{q} \times 100$$

(%change in quantity demanded)=-0.02 20=-0.4

Implying 4% decrease in quantity demanded owing to 20% increase in price of the commodity.

We know,

Old expenditure = P Q

New expenditure =P(1+0.2) Q(1-0.04)

Percentage change in expenditure

$$= \frac{\text{New expenditure} - \text{Old expenditure}}{\text{Old expenditure}} \times 100$$

$$= \frac{P(1+0.2) \times Q(1-0.04) - PQ}{PQ} \times 100$$

$$= \frac{PQ(1.2)(0.96) - PQ}{PQ} \times 100$$

$$= \frac{[(1.2)(0.96) - 1]PQ}{PQ} \times 100$$

= 1.152-1 100

= 0.152 100 =15.2

Implying that expenditure on the commodity increases by 15.2% owing to increase the

1. commodity by 20%. Which is why ed is less than 1.

3

Production and Costs

Production Function

Production function is the relationship between physical input such as labour, capital and physical output of a good. It is expressed in the following form:

$q = f(x_1, x_2)$

It means by using x_1 amount of factor 1 and x_2 amount of factor 2, you will be able to produce q amount of good.

Fixed and variable factors

Factors of production are classified as fixed factors and variable factors. Fixed factors are those factors of the application which does not change with a change in output. Variable factors are those factors of the application which varies with a change in output.

Concept of period in production

The time period in which a firm makes changes in its production by changing only its variable factors but not its fixed factors is termed as short run. The time period in which a firm can change all the factors of production is termed as long run.

Concepts Related to Production

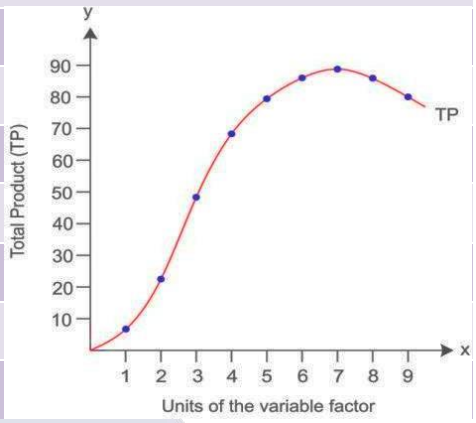
- Total Product (TP) is the sum total of each unit of the variable factor used in the process production. Average Product (AP) is the physical output per unit of the variable factor used in the process production.
- Marginal Product (MP) is the additional output attributed to an additional unit of the variable factor, while other factors remaining constant.

Relationship between MP and TP

Here the table and the diagram given below shows the relationship between MP and TP:

- Till the third unit of variable factor, MP increases from 4 to 28 units and the TP increases for every additional unit. So long as MP is increasing, TP is increasing at an increasing rate.
- But when MP starts diminishing at the 4th unit of variable factor input, the TP increases only at a decreasing rate
- When 7th unit was applied, MP is zero, there is no addition to TP and TP is at maximum level.
- When MP is negative, TP starts declining at the 8th unit. TP diminishes from 84 to 80 and the MP is negative 4 (-4).

Units of Fixed Factor	Units of Variable Factor	TP	MP
1	0	0	0
1	1	4	4
1	2	20	16
1	3	48	28
1	4	68	20
1	5	80	10
1	6	84	4
1	7	84	0
1	8	80	-4

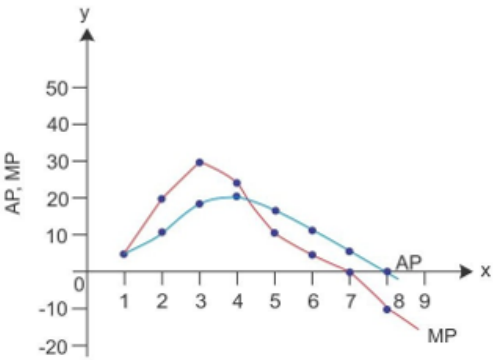


Relationship between AP and MP

Here the table and the diagram given below shows the following relationship between AP and MP:

- AP increases as long as MP is greater than AP. Till the point p, AP is at maximum.
- AP decreases when MP < AP. Beyond the point p, AP is at its top.
- AP is at its maximum when AP = MP.
- MP curve cuts AP from above at its maximum. MP may be zero or negative, but AP remains positive.

Units of Fixed Factor	Units of Variable Factor	AP	MP
1	0	0	0
1	1	4	4
1	2	10	16
1	3	16	28
1	4	17	20
1	5	16	10
1	6	14	4
1	7	12	0
1	8	1	-4



Returns to a Factor: Law of Variable Proportion

Law of variable proportion states that as more and more of the variable factor input is combined with the fixed factor input, eventually a point will be reached where the marginal product of the variable factor input starts declining.

Units of Fixed Factor	Units of Variable Factor	TP	MP	Stages
1	1	4	4	Increasing MP- Increasing returns to a factor
1	2	12	8	
1	3	24	12	
1	4	32	8	Diminishing MP- Diminishing returns to a factor
1	5	34	2	
1	6	34	0	
1	7	30	-4	
1	8	21	-9	Negative MP- Negative returns to a factor
1	9	10	-11	

Returns to Scale

If all factors are increased in the same proportion, the scale of production increases. It is a situation, where all factors are variable factors and are possible only in the long run. Returns to scale relates to the behaviour of total output as all factors are changed in same proportion. Three aspects of returns to scale are.

- Increasing returns to scale happens when increase in output is proportionately greater than the increase in output in factor input, while the factor ratio remains constant.
- Constant returns to scale happens when increase in output is proportionately equal to increase in factor input, while the factor ratio remains constant.
- Diminishing returns to scale happens when increase in output is proportionately lesser than the increase in factor input, while the factor ratio remaining constant.

Cost Function

A cost function shows the functional relationship between cost and output. It gives the least cost combinations of inputs corresponding to various levels of output.

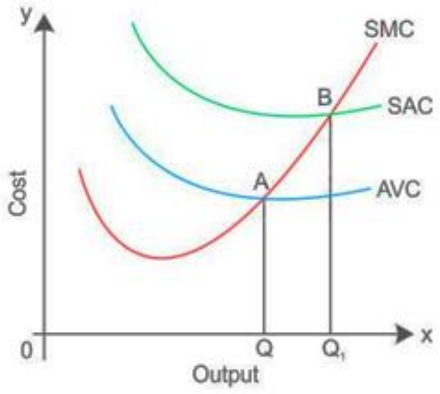
Short run cost

- **Short run costs:** are the cost during which some factors are fixed in supplies such as plant and machinery. These are divided into
- **Fixed costs:** Fixed costs are the sum total of expenditure incurred by the producer on the purchase or hiring of fixed factors of production. It does not change with change in quantity of output. It remains the same whether the output is zero or maximum.
- **Variable costs:** Variable costs are the expenditure incurred by the producer on the use of variable factors of production. It changes with change in quantity of output. Its cost is zero when output is zero.
- **Average costs:** Cost per unit of output produced is called an average cost i.e. AC=TC/Q. It is the sum total of average fixed cost (AFC) and average variable cost (AVC).
- **Average fixed** cost is the fixed cost per unit of output. AFC curve slopes downward to the right. It shows that AFC decreases as output increases. It is a rectangular hyperbola curve. It means that the product of AFC and output is equal to TFC which remains constant at all levels of output.
- TFC = AFC * Q
- **Average variable cost**: is the variable cost per unit of output. AVC curve is U-shaped. This is in accordance with the law of variable proportions. It falls so long as returns to a factor are increasing. It rises when returns to a factor are decreasing.

- **Marginal cost:** Marginal cost (MC) is the change in total cost when an additional unit of output is produced. It is also U-shaped curve in accordance with the law of variable proportions. Falling MC is in accordance with rising marginal product (MP), when there are increasing returns to a factor. Rising MC is in accordance with falling MP when there are diminishing returns to a factor.

Shapes of the short run cost curves

- MC curve should be shown cutting both AC and AVC at their lowest points.
- When AC falls, MC falls faster than AC. Then the MC remains below AC curve.
- When AC rises, MC rises faster than AC. Then the MC curve is above AC curve.
- As MC falls faster than AC, it reaches its lowest point earlier than AC. Then the MC starts increasing even when AC is declining.
- MC must cut AC from its lowest point.



Long run costs

In the long run, all the inputs are variable. Hence, there is no distinction between variable costs and fixed costs. All costs are variable cost in the long run. Shape of long run total cost (LTC) remains the same as short run total costs. Initially, LTC curve increases at a diminishing rate then it tends to increase at a constant rate and finally it rises at an increasing rate. This curve starts from the origin because all the costs are variable cost which varies with output. Therefore, when output is zero, the variable costs are also zero.

Long run average cost is defined as cost per unit of output. Long run marginal cost is the change in total cost per unit of change in output. The sum of all marginal costs up to certain output level gives the total cost at that particular level. Like short run average and marginal cost curves, long run average and marginal cost curves are also U-shaped.

Class : 11th Economics (Microeconomics)
Chapter-3 : Producer Behaviour & Supply

Producer Behaviour & Supply

Price Elasticity of Supply

Measurment
$e_s = \frac{\%\text{ change in quantity supplied}}{\%\text{ change in price}}$

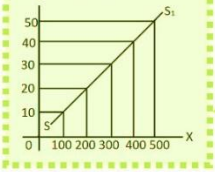
Forms
Perfect Elastic, es =∞,
Perfect Inelastic, es =0
Unitary Elastic, es =1
Relatively Elastic, es >1
Relatively Inelastic, es <1

Determinants
- Number of sellers,
- Prices of resources,
- Taxes and subsidies,
- Technology available,
- Prices of related products.

Supply Schedule
A method of sharing the different amounts of a certain product that a company would need to supply.

Meaning
A producer is said to be in equilibrium when he produces the level of output at which his profits are maximum.

Supply Curve



Different Products

Marginal Product
The change in output per unit of Change in the input when all other inputs are

Average Product
The output per unit of variable input.

Total Product
The Total output of a commodity produced.

Producer's Equilibrium

Condition
- Marginal cost = Marginal Revenue.
- Marginal cost should cut the marginal revenue curve from below.

Meaning
A producer is said to be in equilibrium when he produces the level of output at which his profits are maximum.

Supply

Return to a Factor

Return to a factor relate to the short - period production function when one factor is varied keeping the other factor fixed in order to have more output.

Revenue

Relation Between TR and MR
- When TR rises, MR is positive,
- When TR is maximum, MR becomes Zero,
- When TR falls, MR becomes negative.

Relation Between AR and MR
- When MR > AR, AR rises,
- When MR = AR, AR is constant,
- When MR < AR, AR falls.

Types

Total Revenue
TR = P x Q

Average Revenue
$AR = \frac{TR}{Q} = \frac{P \times Q}{Q} = P$

Marginal Revenue
$MR = TR_n - TR_{n-1}$

Production Function

Short-run
The firms do not have enough time, to change in the factors of production, i.e., some remain constant

Long-run
The supply both the inputs, labour and capital is assumed to be elastic.

Short-run Coasts

Marginal Cost
- Cost of producing one extra unit

$MC = TC_n - TC_{n-1}$

Total Cost
TC = TVC + TFC

Total Fixed Cost
Does not Very With Level of output, e.g., rent for budding.

Total Variable Cost
Change with level of output, e.g., cost of raw material.

Average Total Cost

Types

Average Fixed Cost
$AFC = \frac{TFC}{Q}$

Average Variable Cost
$AVC = \frac{TVC}{Q}$

Formula
$ATC = \frac{TC}{Q}$

Important Questions

Multiple Choice Questions-

1. In production function, production is a function of:
   (a) Price
   (b) Factors of Production
   (c) Total Expenditure
   (d) None of these
2. The basic reason of operating the Law of Diminishing Returns is:
   (a) Scarcity of Factors
   (b) Imperfect Substitution between Factors
   (c) Both (a) and (b)
   (d) None of the above
3. Which of the following explains the short-run production function ?
   (a) Law of Demand
   (b) Law of Variable Proportion
   (c) Returns to Scale
   (d) Elasticity of Demand
4. Long-run production function is related to:
   (a) Law of Demand
   (b) Law of Increasing Returns
   (c) Laws of Returns to Scale
   (d) Elasticity of Demand
5. In which stage of production a rational producer likes to operate in shot-run production ?
   (a) First Stage
   (b) Second Stage
   (c) Third Stage
   (d) None of these
6. Law of variable proportion explains three stages of production. In the first stage of production:
   (a) Both MP and AP rise
   (b) MP rises
   (c) AP Falls
   (d) MP is zero
7. At which time all the factors of production may be changed ?
   (a) Short run
   (b) Long run
   (c) Very Long run
   (d) All the three
8. Production function is expressed as:
   (a) Qx = Px
   (b) Qx = f(A, B, C, D)
   (c) Qx = Dx
   (d) None of these
9. Which factors among following we find in short-run production process ?
   (a) Fixed Factors
   (b) Variable Factors
   (c) Both (a) and (b)
   (d) None of these
10. The cycle which increases first and after being constant starts to reduce is called :
    (a) APP
    (b) MPP
    (c) TPP
    (d) All of these
11. Which of the following is a saurce of production ?
    (a) Land
    (b) Labour
    (c) Capital
    (d) All of these
12. Law of variable proportion is related to :
    (a) Both short-run and long run
    (b) Long-run
    (c) Short-run
    (d) Very Long-run
13. An active factor of production is:
    (a) Capital
    (b) Labour
    (c) Land
    (d) None of these
14. If all the factors of production are increased by same proportion and as a result output increases by a greater proportion than it is called :
    (a) Constant returns to scale
    (b) Decreasing returns to scale
    (c) All of these
    (d) None of these

15. Which of the following is included in money cost ?

(a) Normal Profit

(b) Explicit Cost

(c) Implicit Cost

(d) All of these

Very Short :

1. 1 Does Total Physical Product increase only when Marginal Physical Product increases?

2. 2 What will be the marginal product when the total product is maximum?

3. 3 How is Total Physical Product derived from Marginal Physical Product?

4. 4 What do you mean by production?

5. 5 Increase in Total Physical Product indicates that there are increasing returns to a factor.

6. 6 Why Average Fixed Cost curve never touches "x" axis though lies very close to the x-axis?

7. 7 When TVC is zero at zero levels of output, what happens to TFC or why TFC is not zero at zero level od output?

8. 8 What is a change in quantity demanded?

Short Questions :

1. Evaluate the marginal product for the following.

Variable Factor Unit	0	1	2	3	4	5	6
Total Unit	0	5	13	23	28	28	24

2. Define cost concept. What are the different types of cost?

3. Explain the likely behaviour of total product under the stage of increasing return to a factor with the help of numerical example.

4. With the help of example distinguish between total fixed cost and total variable cost.

5. Draw average cost, average variable cost and marginal cost curves on a single diagram and explain their relations.

6. Draw average cost, average variable cost and average fixed cost curves on a single diagram and explain their relation.

7. Explain the relation between average revenue and marginal revenue when a firm can sell an additional unit or a good by lowering the price.

8. Explain how do the following determine price elasticity of supply:

(i) Nature of the good (ii) Time period.

9. Define marginal revenue. State the relation between marginal revenue and average revenue when a firm:

(i) is able to sell more quantity of output at the same price.

(ii) is able to sell more quantity of output only by lowering the price.

10. How do changes in MR affect TR?

Long Questions:

1. In the following table, identify the different phases of the law of variable proportions and explain them with the help of the table and a diagram.

Variable input (units)	1	2	3	4	5	6	7	8
Total product (units)	2	5	9	12	14	15	15	14

2. All the inputs used in production of a good are increased simultaneously and in the same proportion. What are its possible effects on Total Product? Explain with the help of a numerical example.

3. Explain the relation between Average Cost and Marginal Cost.

4. If price elasticity of supply of a commodity is 5. A producer supplies 500 units of this product at a price of Rs. 5 per unit. How much quantity of this product will be supplied, at the price of Rs. 6 per unit?

Assertion Reason Question:

1. **Direction:** In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R). Mark the correct choice as:

A. Both Assertion (A) and Reason (R) are true, and Reason (R) is the correct explanation of the Assertion (A).

B. Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).

C. Assertion (A) is true, but Reason (R) is false.

D. Assertion (A) is false, but Reason (R) is true.

Assertion (A): Increasing returns to a factor is a short run phenomenon.

Reason (R): Greater application of the variable factor ensures fully utilization of the fixed factor.

2. **Direction:** In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R). Mark the correct choice as:

   A. Both Assertion (A) and Reason (R) are true, and Reason (R) is the correct explanation of the Assertion (A).

   B. Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).

   C. Assertion (A) is true, but Reason (R) is false.

   D. Assertion (A) is false, but Reason (R) is true.

   Assertion (A): Average product increases only when marginal product increases.

   Reason (R): AP increases so long as MP is greater than AP, whether MP is rising or falling.

Answers Key

MCQ Answers :

1. (b) Factors of Production
2. (c) Both (a) and (b)
3. (b) Law of Variable Proportion
4. (c) Laws of Returns to Scale
5. (b) Second Stage
6. (a) Both MP and AP rise
7. (b) Long run
8. (b) Qx = f(A, B, C, D)
9. (c) Both (a) and (b)
10. (d) All of these
11. (d) All of these
12. (c) Short-run
13. (b) Labour
14. (d) All of these
15. (d) All of these

Very Short Answers :

1. No, because Total Physical Product increases Marginal Physical Product decreases but remains positive.

2. Marginal Product will be zero when the total product is maximum.

3. Cumulative addition

4. Production is the method of producing or developing goods or services in large quantities with the help of various materials.

5. No, the total physical product also rises when the returns to a factor decrease.

6. The Average Fixed Cost curve never touches "x" axis though lies very close to the x-axis because Total Fixed Cost can never be zero.

7. When TVC is zero at zero levels of output, what happens to TFC or why TFC is not zero at zero levels of output because the fixed cost is to be acquired even at zero levels of output.

8. It is a change along a demand curve. The change is due to a change in price and quantity of a commodity. The two types of change in quantity demand are Extension in demand and Contraction in demand.

Short Answers:

1.

Marginal Product	0	5	8	10	5	0	-4

2. The spending experienced on different inputs is known as the cost.

Types of cost:

Money Cost: Total money spent by a company for manufacturing goods.

Explicit Cost & Implicit Cost: Payment made to an outsider are explicit and cost of self-supplied inputs are implicit cost.

Real Cost: All hard work, discomforts, sacrifices involved in manufacturing a product is called real cost.

Opportunity Cost: This the cost for the next best alternative foregone.

Short Run Cost: Fixed cost- Fixed factors cost

Variable Cost: Variable factor cost

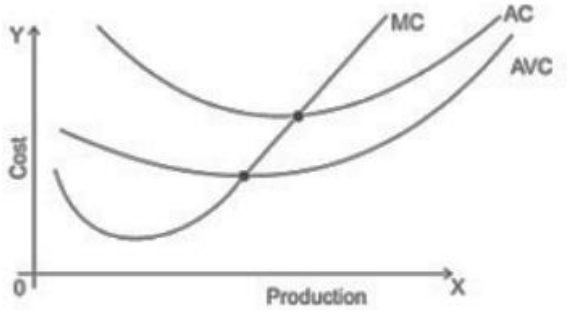
3. Increasing return to a factor is the first phase of the Law of return to a factor. When more and more units of a variable factor is combined with fixed factor up to a certain level total physical product increases with increasing rate.

Machine	Unit of labour	Total physical product
1	1	10
1	2	24
1	3	42

4.

Basis	Fixed cost	Variable cost
Definition	Fixed cost is referred to as the cost that does not register a change with an increase or decrease in the quantity of goods produced by a firm.	Variable cost is referred to as the type of cost that will show variations as per the changes in the levels of production.
Nature of cost	It is time-dependent and changes after a certain period of time.	It is volume-dependent and changes based on the volume produced.
How are they incurred?	Fixed costs are incurred irrespective of any units produced.	Variable costs are incurred as and when any units are produced.
Does it change with the number of units?	Fixed cost decreases with an increase in the number of units produced.	Variable cost remains the same irrespective of the number of units produced.
Impact on profit	Higher production results in reducing the costs and increasing the profits.	There is no impact on profit with the level of production.
Examples	Rent, salaries, and property taxes	Labour cost, cost of raw materials, and sales commissions

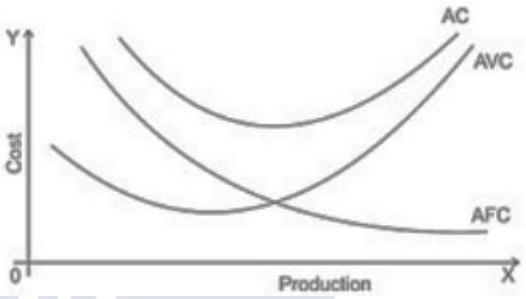
5.



Relation of AC, AVC and MC

1. MC interects to AC and AVC at their minimum level
2. AC and AVC decreases before the interection by MC, but remain greater than MC.
3. AC and AVC starts to increase after the itersection by MC, and becomes less than MC.
4. As output increases, AC and AVC tends to be closer but the difference between AC and AVC can never be zero.

6.



1. AC is the vertical summation of AVC and AFC
2. The difference between AC and AVC falls as output increases but the difference of AC and AFC increases.
3. As output increases AC and AVC tends to be closer but their curves do not interect each other because AFC always remains more than zero.

7.

1. AR and MR both decreases.
2. MR decrease at the rate of twice than AR.
3. MR become zero and negative but AR can never be zero.

8.

1. **Nature of Commodity:** Elasticity of industrial goods is more than that of agricultural goods. Similarly supply of durable goods e.g. table is more elastic than that of perishable goods e.g. vegetables.

2. **Time Period:** Generally elasticity of supply is more in the long period than in shorter period of time. The reason is that in the long period, all adjustments to the changed price can be made easily and supply of commodity can be varied accordingly

9. Marginal revenue is the addition to total revenue from producing one more unit of output.

1. MR = AR at all levels of the output. (In case of perfect competitive market)
2. MR will be less than AR at all levels of the output. (In case of monopoly and monopolistic market)

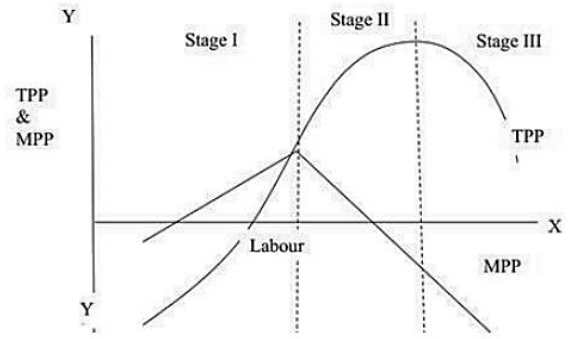
10.

1. If MR increases, TR increases at increasing rate.
2. If MR is constant, TR increases at constant rate.
3. If MR falls, TR increases at diminishing rate.

Long Answers:

1. Law of Variable Proportion states that if we go on using more and more units of a variable factor along with a fixed factor, the total output initially increases at an increasing rate, after that it increases at diminishing rate and finally it declines. It can be explained through the following three stages:

Units of labour	TPP	MPP	Stages of Production
1	2	2	Stage I
2	5	3	
3	9	4	
4	12	3	Stage II
5	14	2	
6	15	1	
7	15	0	Stage III



Stage 1:

- TPP increases at an increasing rate.
- MP increases and reaches at its maximum at the end of the stage.
- This is also called stage of increasing returns.

Stage 2:

- TPP increase but at diminishing rate.
- MPP starts decline but remains positive.
- This stage comes to an end when TPP is maximum and MPP is zero.

Stage 3:

- TP starts decline.
- MP becomes negative.
- This is also called stage of decreasing/negative returns.

2. The behaviour of total output in the long run time period is technically termed as Returns to Scale.

There are three possibilities:

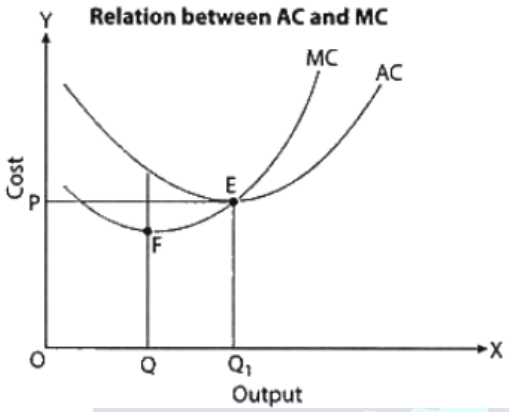
1. **Increasing Returns to Scale (IRS):-** It occurs when a given proportionate increase in all factor inputs (in some constant ratio) causes proportionately greater increase in output.

   For example: Suppose there are only two inputs, labour (L) and Capital (K). Suppose 1K + IL produce 100 units and 2K + 2Lproduce 250 units. Input rises by 100% while the output rises by 150%.
2. **Constant Returns to Scale (CRS):-** It occurs when a given proportionate increase in all factor inputs causes proportionately equal increase in output. At this stage, economies of scale are counter balanced by diseconomies of scale. For example, suppose 1K+1L produce 100 units and 2K+2L produce 200 units, both inputs and TP rise in the same proportion.
3. **Diminishing Returns to Scale (DRS):-** It occurs when a given proportionate increase in all factor inputs causes proportionately lesser increase in output.

   For example, Suppose 1K+1L produce 100 units and 2K+2L produce 190 units, inputs rise by 100% while the output rise by 90%

3. **Answer:** The relation between Average Cost and Marginal Cost

- When Average Cost decreases, Marginal Cost declines faster than the Average Cost. So, that Marginal Cost curve remains lower than the Average Cost curve. This means Average Cost > Marginal Cost.
- When Average Cost increases, Marginal Cost rises faster than the Average Cost. So, that MC curve is above the Average Cost curve
- Marginal Cost curve intersects Average Cost curve from its lowest point. When the average curve is minimum then Marginal Cost=Average Cost.



4. es = 5

P	Q	Δq	=	x-500
5	500	Δp	=	1
6	x	P	=	5
		Q	=	500

$$e = \frac{\Delta q}{\Delta p} \times \frac{p}{q}$$

$$5 = \frac{X - 500}{1} \times \frac{5}{500}$$

$$5 = \frac{X - 500}{100}$$

$500 \times 100 = x - 500$

$500 + 500 = x$

$x = 1000$ (units)

Assertion Reason Answer:

1. B. Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).

2. C. Assertion (A) is true, but Reason (R) is false.

4

The Theory of The Firm Under Perfect Competition

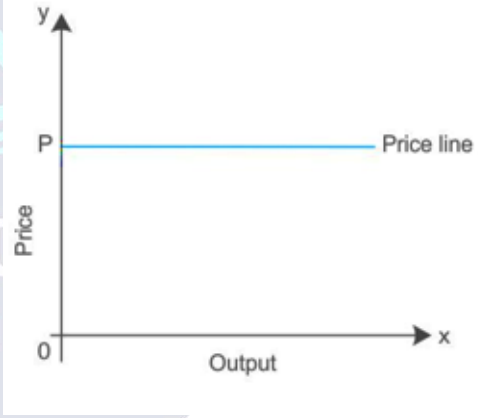
Perfect Competition

A perfectly competitive market is a market which consists of buyers and sellers. They produce a homogeneous product. An individual firm cannot change the price of the commodity. Price is determined by the forces of market demand and market supply. All the firms in the industry sell their output at a given price. Hence, a firm under perfect competition is a price taker.

Revenue

A firm selling a good in the market and receiving money from that sale is called revenue. Profit is the difference between revenue and costs, whereas the revenue is the sum of cost and profit.

Revenue = Costs + Profit (or) Profit = Revenue – Costs



- Total revenue is the total money receipts of a producer corresponding to a given level of output.

  TR = p * q

- Average revenue of a firm is the total revenue per unit of output sold.

  AR= TR/q ……..(1)

  TR = p*q ……..(2)

  By relating equation (1) and (2), we will find, AR= p * q/q = p

  When AR equals the market price, the firm can sell any amount of good at a given price.

- Marginal revenue of a firm is defined as the increase in total revenue for a unit increase in the firm's output.

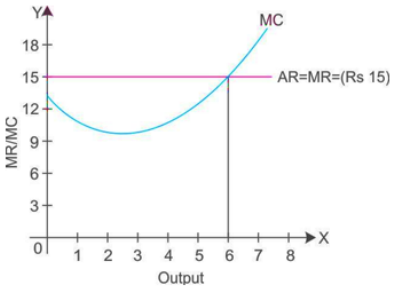
Producer's Equilibrium

Producer's equilibrium means that the producers attain optimum output level with the given factors of production where the producer can maximise the profit.

According to marginal revenue and marginal cost approach, producer strikes equilibrium when the following two conditions are satisfied:

- MR = MC
- MC is rising or MC curve cuts MR curve from below.

Price (AR) is constant so that MR is constant i.e. at Rs 15 as shown in the below table. The table shows that the two condition of equilibrium are satisfied only when 6 units of output are produced. MR is equal to MC which is equal to Rs 15 and MC curve is rising.



Output	Price	TC	TR	MR	MC	TR-TC
1	15	12	15	15	12	3
2	15	21	30	15	9	9
3	15	29	45	15	8	16
4	15	36	60	15	7	24
5	15	45	75	15	9	30
6	15	60	90	15	15	30
7	15	76	105	15	16	29

MC be rising at the point of equilibrium

When MC is falling, the cost of producing an additional unit of output tends to decrease. Under perfect competition, when price is constant the difference between the total revenue and total variable cost tends to increase. This leads to rising gross profit. But a firm will not increase the output with an increasing gross profit. The firm will be at equilibrium only when MC is rising.

Firm increases its output, when MR is equal to MC

As MR is assumed to be constant under perfect competition, even when MR is equal to MC, any increase in output leads to MC is greater than MR. The difference between the total revenue and total variable cost tends to decrease. This leads to decline in firm's gross profit.

Relationship exists between average revenue and marginal revenue, when a firm can sell an additional unit or a good by lowering the price.

- Both AR and MR decrease
- MR decreases at double the rate than the AR
- When MR becomes zero and negative, AR will never be zero.

Short run and long run analysis

In the short run, equilibrium of a firm may occur, when it is making super-normal profits or super normal losses or normal profits.

When a firm makes super normal profits, AR > AC or P > AC

When a firm makes super normal losses, P < AC

When a firm makes normal profit, P = AC

In the short run, if there is a positive level of output at which a firm's profit is maximised, three conditions are satisfied at that output level.

$$p = SMC \text{ or } MR = MC$$

MC is rising or MC curve cuts MR curve from below

$$p \geq AVC \text{ or } MR \geq AVC$$

In the diagrams (a) and (b), equilibrium is shown at point S where MR is equal to MC and MC is rising or MC is cutting MR from below. In diagram (a), the firm is in equilibrium with extra-normal profits i.e. P > AC. In the diagram (b), firm is in equilibrium with normal profit i.e. AR = AC.

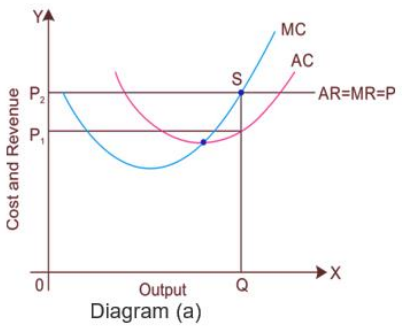


Diagram (a)

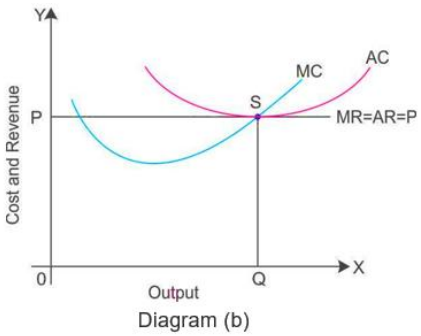


Diagram (b)

In the long run, a firm makes only normal profits (AR = AC). Diagram (c) shows equilibrium at the point S, where MR = MC and also AR = AC. Like short run, price is determined by the industry and the firm adjusts its output to the given price. Thus, the firm in the long run strikes equilibrium where

MR = MC

MC is rising and

AR = AC only normal profits are earned

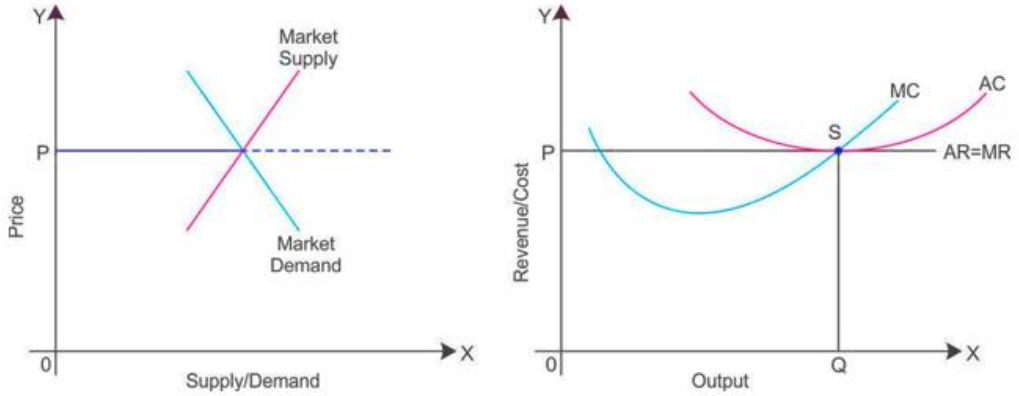


Diagram (c)

Supply curve

Supply curve, a graphic presentation of supply schedule shows the positive relationship between the market price of good and the quantity supplied. In a market, the output level of a profit maximising firm will depend on the period i.e. short run or long run firm.

The short run supply curve of a firm

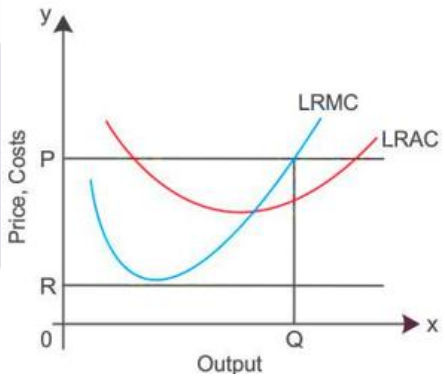
When the market price is greater than or equal to the minimum AVC, the firm identifies the output level in the short run to maximise profit. The supply curve of a firm is less elastic and it is responsive to changes in price.

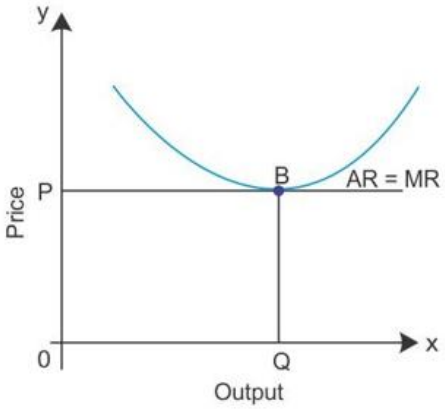
The long run supply curve of a firm

In the long run, the market price is greater than or equal to the minimum LRAC. The market price exceeds the minimum average cost in the long run as shown below. At the marginal cost rising point, the level of output Q is obtained. Average cost does not exceed the market price at the output level Q. Therefore, the firm supplies OQ level of output in the long run.

In the diagram, the market price is R, which is less than the average cost. But the profit maximising firm will produce output where the market price R is greater than or equal to the average cost.

When a firm earns normal profit, the breakeven point of minimum average cost is at which the supply curve cuts the average cost. A firm only covers the cost, and therefore the breakeven point is at point B where AR = AC.





Determinants of Supply

- **Price of the product:** When there is an increase in the price of the product and if it is more than the marginal cost of production, then it enables the firm to earn more profit by selling at a higher price. Hence, there is an increase in the supply of the product.
- **Prices of the factors of production:** Given the other factors, if the prices of the factors of production increase, then there is decline in the profit of the firm. Hence, the firm would reduce the quantity of supply at the current price level.

- **Technological condition:** Technological improvement in production enables the firm to increase the supply at the current price level.
- **Price of other commodities:** When the prices of other commodities increase, the producer starts producing those commodities to make more profit. Hence, the supply of the existing commodity will fall.
- **Price of related commodities:** If the price of a commodity remains constant and the price of its substitute rises, then producers would produce substitute goods to make more profit. Hence, the supply of the existing commodity will fall.
- **Taxes:** When the government imposes heavy taxes on the production of a particular commodity, the cost of production of that good increases and the price will remain constant. This results in reduction in profits. In such a situation, the producer will use the resources to produce those commodities on which the government has levied less tax. Therefore, the supply of that particular commodity decreases.

Market supply curve

Market supply curve is derived by the horizontal summation of the supply curves of all the firms in the industry. It shows various quantities of commodity which all the firms in the market are ready to sell at different possible prices of that commodity.

Price elasticity of supply

Price elasticity of supply is the measure of change in quantity supplied of a commodity because of change in its price.

E_s = Percentage change in quantity supplied / Percentage change in price

Geometric method

Under geometric method, elasticity of supply depends on the origin of the supply curve. Assuming the supply curve to be a straight line and positively sloped curve, three possible situations of elasticity of supply can be noticed

- Positively sloped supply curve starts from the point of origin, $E_s = 1$
- Positively sloped supply curve starts from Y axis, $E_s > 1$
- Positively sloped supply curve starts from X axis, $E_s < 1$

Important Questions

Multiple Choice Questions:

1. The concept of supply curve is relevant only for?
   (a) Monopoly
   (b) Monopolistic competition
   (c) Perfect competition
   (d) Oligopoly
2. Which of the following is an example of perfect competition?
   (a) Agriculture
   (b) Banking sector
   (c) Car manufacturing
   (d) Railways
3. Can MR be negative or zero.
   (a) Yes
   (b) Can't say
   (c) No
   (d) Only negative but not zero
4. If all units are sold at same price how will it affect AR and MR?
   (a) B. AR > MR
   (b) A. AR = MR
   (c) D. AR + MR = 0
   (d) C. AR < MR
5. What is price line
   (a) The demand curve
   (b) The AR curve
   (c) The MR curve
   (d) The TR curve
6. Can TR be a horizontal Straight line?
   (a) May be
   (b) Can't say
   (c) Yes
   (d) No
7. The revenue of a firm per unit sold is its
   (a) MR
   (b) AR
   (c) TR
   (d) TC
8. The product of AR and price at every unit sold is the firm's
   (a) TR
   (b) TVC
   (c) MR
   (d) AR
9. In perfect competition, in the long run, _____?
   (a) There are large profits for the firm
   (b) There is no profit and no loss for the firm
   (c) There are negligible profits for the firm
   (d) There are large losses for the firm
10. In perfect competition, when the marginal revenue and marginal cost are equal, profit is?
    (a) Maximum
    (b) Zero
    (c) Negative
    (d) Average
11. In perfect competition, a firm earns profit when _____ exceeds the _____?
    (a) Total revenue, total fixed cost
    (b) Marginal cost, marginal revenue
    (c) Average revenue, average cost
    (d) Total cost, total revenue
12. In the perfectly competitive market, in the long run, competitive prices equal the minimum possible _____ cost of good?
    (a) Average
    (b) Total
    (c) Variable
    (d) Marginal
13. In perfect competition, in the long run, if a new firm enters the industry the supply curve shifts to the right resulting in_____?
    (a) Reduction in supply
    (b) No change in price
    (c) Fall in price
    (d) Rise in price
14. Which of the following type of competition is just a theoretical economic concept, not a realistic case where actual competition and trade take place?
    (a) Monopolistic competition
    (b) Monopoly
    (c) Oligopoly
    (d) Perfect competition

15. In perfect competition, which of the following curves generally lies below the demand curve and slopes downward?

(a) Average revenue

(b) Average cost

(c) Marginal revenue

(d) Marginal cost

Very Short:

1. Define perfect competition.

2. Define Monopoly.

3. What is oligopoly?

4. What is product differentiation?

5. What is the shape of marginal revenue curve under monopoly?

6. What is break – even price?

7. What is the normal profit?

8. What is a patent right?

9. What is a price taker company?

10. What is a price maker company?

Short Questions :

1. A market for a good is in equilibrium. Demand for good 'increases'. Explain the chain effects of this change.

2. Why is the demand curve in monopolistically competitive firms likely to be very elastic?

3. Explain the implication of free entry and free exit of a firm in a perfect competitive market?

4. With the help of the diagram, show the effect on equilibrium price and quantity when supply is perfectly inelastic and demand increases & decreases.

5. Which features of monopolistic competition are monopolistic in nature?

6. When will the equilibrium price not change even if demand and supply increases?

Long Question :

1. Distinguish between change in supply and change in quantity supplied. State two factors responsible for change in supply.

2. Explain the conditions of a producer's equilibrium in terms of Marginal Cost and Marginal Revenue. Use a diagram.

3. When the price of a commodity rises from Rs. 10 to Rs. 11 per unit, its quantity supplied rises by 100 units. Its price elasticity of supply is 2. Calculate its quantity supplied at the increased price.

4. A firm supplies 500 units of a good at a price of Rs. 5 per unit. The price elasticity of supply of good is 2. At what price will the firm supply 700 units?

Assertion Reason Question:

1. **Direction:** In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R). Mark the correct choice as:

   A. Both Assertion (A) and Reason (R) are true, and Reason (R) is the correct explanation of the Assertion (A).

   B. Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).

   C. Assertion (A) is true, but Reason (R) is false.

   D. Assertion (A) is false, but Reason (R) is true.

   Assertion (A): There is no restriction on the entry and exit of the firms in the perfect competitive market.

   Reason (R): The perfect competition market is characterised by the sellers being a price taker and not a price maker.

2. **Direction:** In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R). Mark the correct choice as:

   A. Both Assertion (A) and Reason (R) are true, and Reason (R) is the correct explanation of the Assertion (A).

   B. Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).

   C. Assertion (A) is true, but Reason (R) is false.

   D. Assertion (A) is false, but Reason (R) is true.

   Assertion (A): The vegetable market is a perfect example of perfect competition market.

   Reason (R): The marketers have no control over the prices of the product.

Answers Key

MCQ Answers :

1. (c) Perfect competition
2. (a) Agriculture
3. (a) Yes
4. (b) A. AR = MR
5. (c) The MR curve
6. (d) No
7. (b) AR
8. (a) TR
9. (b) There is no profit and no loss for the firm
10. (a) Maximum
11. (c) Average revenue, average cost
12. (a) Average
13. (c) Fall in price
14. (d) Perfect competition
15. (c) Marginal revenue

Very Short Answers :

1. A market with perfect competition has a large number of customers and sellers selling the same product at the same price.
2. A monopoly is a market arrangement in which a single supplier has complete price control.
3. Oligopoly is defined as a market structure characterized by a small number of significant sellers who sell either homogeneous or differentiated commodities.
4. It is the practice of differentiating products and services on various basis such as style, looks, label, color, size, packaging, brand name, etc., with an objective to make it more attractive and better than the product or service of the competitors.
5. In a monopoly market, the marginal revenue curve slopes downhill from left to right and is lower than the average revenue curve.
6. The break-even price in a completely competitive market is the price at which a firm earns normal profit (Price =AC). In the long run, the break-even price is the point at which P=AR=MC.
7. Normal profit is referred to as the minimum or least amount of profit which is required to keep an organisation engaged in the production process for the long run.
8. Patent right is an exclusive license or right conferred to an organisation to manufacture particular goods or services under a specific technology.
9. Price taker companies are those companies that have no option but to accept the price determined by the industry.
10. A price maker company is that company which can influence the price of a product on its own.

Short Answers :

1. The chain effects of this change are:
   1. When the price is constant, surplus demand emerges
   2. This also increases the competition among the buyers insisting them to raise the price
   3. A rise in the price of a product cause fall or decrease in the demand and expansion or rise in supply
   4. The cost of the product continues to increase until the market is balanced at a greater price
2. The demand curve in monopolistically competitive firms is likely to be very elastic. The reason for this is because the products produced by monopolistically competitive enterprises are nearly identical, and the firms have less control over the price. If the items are close replacements of one another, and the product is not differentiated enough, the elasticity of demand becomes strong, making the firm's demand curve very elastic.
3. If firms can enter and exit freely, no firm can achieve an extraordinary profit in the long run. That is, the corporation earns no extraordinary profit in case of freedom of entry and exit, and hence, each company gets a standard profit. In a perfect competition there are large numbers of buyers and sellers.

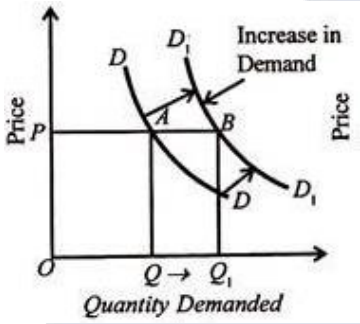
   'Free Entry' means that there are no obstacles in the entry of new firms in the market. When the existing businesses are earning abnormal profits, the new firms are influenced due to the profit and they enter the industry. This increases market supply which leads to fall in market price and furthermore profits.

   'Freedom to exit' means that there are no obstacles which stop the existing firms from

stepping down from the market. The firms attempt to quit when they are dealing with losses. As the firms start to exit, market supply drops, which begins to rise in market price and consequently decreases in losses. The firms do not stop to leave till the losses are eliminated and each remaining firm will be earning just the normal profits.

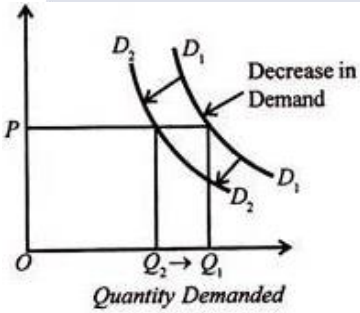
4. **Rise in Demand**

When supply is completely inelastic and demand rises, the demand curve shifts to the right. At point, the new demand curve intersects the supply curve at point As a result, prices rise whereas quantity demand remains unchanged.



Fall in Demand

In the diagram shown below, demand curve shifts towards left when demand falls and price decreases from but quantity remains same.

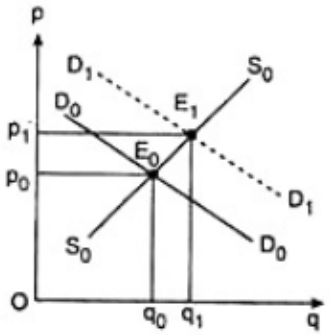


5. Monopolistic competition refers to a market situation in which there are a large number of firms selling products that are closely related but distinct.

- **Large number of sellers:** There are a large number of businesses selling products that are related but not identical. Each firm operates independently and has a limited market share. As a result, a single firm has only limited control over the market price. The presence of a large number of businesses creates market competition.
- **Product Differentiation:** Despite the large number of sellers, each firm can exercise some degree of monopoly through product differentiation. Product differentiation is the process of distinguishing products based on their brand, size, color, shape, and so on. A firm's product is a close but not perfect substitute for another firm's product.
- **Selling costs:** Products are differentiated in monopolistic competition, and these differences are communicated to buyers through selling costs. The expenses incurred on marketing, sales promotion, and product advertisement are referred to as selling costs.
- **Freedom of entry and exit:** Firms are free to enter or exit the industry at any time under monopolistic competition. It ensures that a firm does not experience abnormal profits or losses in the long run.
- **Lack of perfect knowledge:** Buyers and sellers do not have a complete understanding of market conditions. Selling costs create an artificial superiority in the minds of consumers, making it difficult for them to evaluate different products on the market. As a result, even if other less expensive products are of equal quality, consumers prefer a specific product (even if it is highly priced).

6. When the proportionate rise in demand is exactly equal to the proportionate increase in supply, the equilibrium price remains constant. It is depicted in the diagram below.

Diagram



In this diagram one can see that when both demand and supply increase at an equal level. The price remains unchanged, even though the quantity changes.

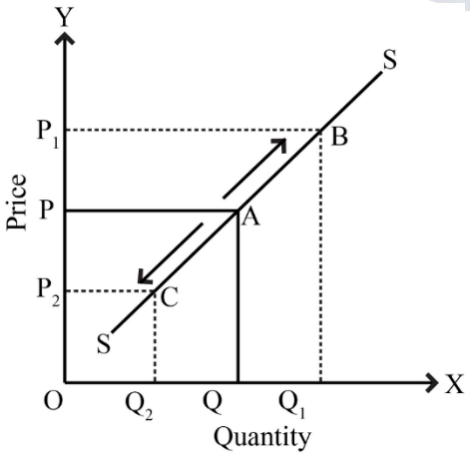
Long Answers :

1. **Ans:** The difference between change in supply and change in quantity supplied is as follows:

Basis	Change in-Quantity Supplied	Change in supply
Meaning	When the quantity supplied changes due to change in price, keeping other factors constant, it leads to a movement along the supply curve,	when the supply changes due to any change in the other factors, at the same price, it leads to a shift in supply curve.
Effect on supply curve	The movement is along the same suppiy curve either upward .(known as contraction in supply).	The shift in the supply curve is either rightward (known as increase in supply) or leftward (known as decrease in supply).
Reason	Tt occurs due to change (increase or decrease) in the price of the given commodity.	It occurs due to a change in other factors like change in the price of inputs, change in taxes, change in technology etc.

Supply represents how much the market can offer at different prices. In contrast, quantity supplied represents what amount of commodity producers will supply at a specific price. The supply schedule or supply curve indicates the supply of the commodity.

Movement along the supply curve or change in quanity supplied: When the supply of a good rises due to rise in the price of the good alone, it is termed as an expansion of supply. When supply of a good falls due to fall in its price, it is called contraction of supply. Graphically, it means a movement along the supply curve.



In the given diagram, at point OP, the supply is OQ.

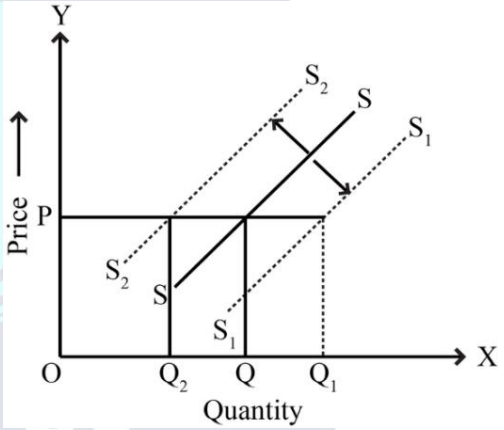
When price rises to OP_1, supply rises to OQ_1. In this case, the producer moves from A to B upwards but remains on the same supply curve. When price falls to OP_2 , supply falls to OQ_2

The producer moves from A to C but remains on the same supply curve.

Shifts in supply curve or change in supply.

When at the given price, the supply of a good increases, it is called increase in supply. When at the given price, the supply decreases, it is called decrease in supply. Graphically, it means shift of supply curve. In the figure, at price OP, the supply is OQ. When there is increase in supply at the given price, the supply curve shifts to the right, If there is a decrease in supply at the given price, the supply curve shifts to the left.

Thus, movement along the supply curve means expansion and contraction of supply whereas shifts in supply curve means increase and decrease in supply.



Factors are responsible for changes in supply:

- **Production costs:** Input prices and the consequent production costs are inversely related to supply. Changes in input prices and production costs, in other words, create an opposing shift in supply. For example, as wages or labor expenses rise, the supply of goods falls.
- **Technology:** Improvements in manufacturing technology change the supply curve. Improvements in technology, in particular, boost supply, resulting in a rightward shift in the supply curve, that is better the technology, higher the supply.
- **Other goods prices:** Other items' price adjustments are a little more challenging. To begin, in order to influence supply, producers must believe the items are related. What customers believe is unimportant. Ranchers, for example, believe that meat and leather are connected since they both come from a steer.

2. **Ans:** The term "producer's equilibrium" refers to a condition in which a producer produces the amount of output that maximizes earnings. It is a profit-maximizing condition. Under the MR-MC technique, the producer will only reach equilibrium at the level of production if the following conditions are met.

- MR = MC
- After MR = MC, MC must rise.
- At the point of equilibrium, the MC curve must cut the MR curve from below.

The addition to TR from the sale of one additional unit of output is denoted by MR, and the addition to TC is denoted by MC. Firms compare their MR with their MC in order to maximize earnings.

In the diagram, output is indicated on the X axis, while revenue and cost are shown on the Y-axis. The MC curve is U-shaped, and P~MR=AR is a horizontal line parallel to the X-axis.

(Image will be Uploaded Soon)

When output level is more than OQ, MR < MC, which implies that the firm is making a loss on its last unit of output. Hence, so as to maximize profit, a rational producer will keep decreasing its output as long as MC > MR. Thus, the firm moves towards producing OQ units of output.

3. Given:

$P = 10$

$P_1 = 11$

$\Delta Q = 100$ units

$E_s = 2$

$\Delta P = P_1 - P_2$

$= 11 - 10$

$= 1$

The price elasticity of supply is calculated as

$$E_s = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

Substitute the know values in the above equation,

$$2 = \frac{100}{1} \times \frac{10}{Q}$$

$$Q = \frac{100 \times 10}{2} = 500$$

Therefore, the quantity supplied at the increase price is calculated as

$Q_1 = Q + \Delta Q$

$= 500 + 100$

$= 600$ units

4. Given:

$P = 5$

$Q_1 = 700$

$Q = 500$

$E_s = 2$

$\Delta Q = Q_1 - Q$

$= 700 - 500 = 200$

The price elasticity of supply is calculated as

$$E_s = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

Substitute the know values in the above equation,

$$2 = \frac{200}{\Delta P} \times \frac{5}{500}$$

$$\Delta P = \frac{2 \times 500}{200 \times 5} = 1$$

Therefore, the new price is calculated as

$P1 = P + \Delta P$

$= 5 + 1$

$= 6$ units

Therefore, the firm will supply 700 units as Rs. 6 per unit.

Assertion Reason Answer:

1. B. Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).

2. A. Both Assertion (A) and Reason (R) are true, and Reason (R) is the correct explanation of the Assertion (A).

5

Market Equilibrium

It is a situation of the market in which demand for a commodity is exactly equal to its supply. Market equilibrium is defined as a state of the market when demand for a commodity is equal to its supply, corresponding to a particular price.

Equilibrium Price:

The market supply equals the market demand. The cost price at which equilibrium is reached is known as the equilibrium price, and the quantity purchased and sold at this cost price is known as the equilibrium quantity.

Equilibrium Quantity:

Equilibrium Quantity the term equilibrium quantity alludes to the number of goods provided in the marketplace when the amount provided by vendors precisely coordinates with the amount demanded by purchasers. It is an idea inside the branch of knowledge of market equilibrium or market balance and is identified with the idea of equilibrium price.

Excess Demand:

When the amount wanted exceeds, the quantity supplied at the current price level, the market is said to be in excess demand.

Yd > Ys

Here, Yd = Market Demand

Ys = Market supply

Excess Supply:

If at any price market supply is greater than market demand. it is said excess supply in the market.

Ys > Yd

Here, Yd = Market Demand

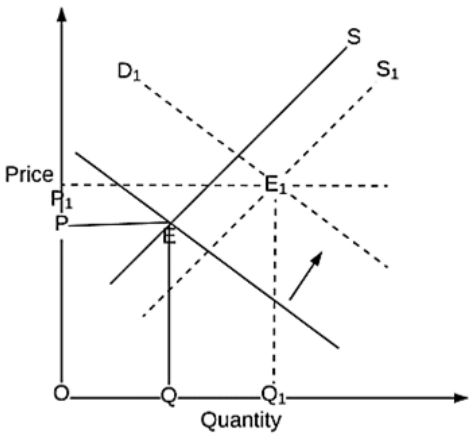
Ys = Market supply

Simultaneous Change in Demand & Supply And Market Equilibrium

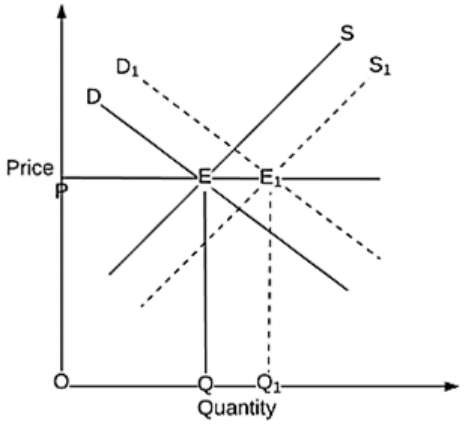
Simultaneous Increase in Demand and Supply

A. Increase in Demand > Increase in Supply

D is the initial demand curve and S, is the initial supply curve. E is the point of initial equilibrium. OP, is the equilibrium price and OQ, is the equilibrium quantity Due to an increase in demand, D, is the new demand e Due to an increase in supply, S is the new supply curve.

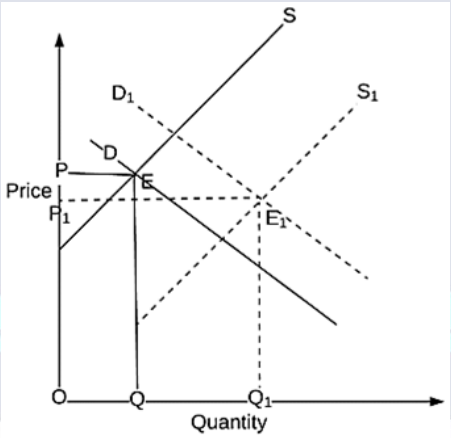


B. Increase in Demand = Increase in Supply:



Shows increase in demand is equal to an increase in supply. There is no excess demand or excess supply. Accordingly, the equilibrium price remains unchanged, i.e., OP. However, equilibrium quantity increases from OQ to OQ1. This is because both demand and supply have increased.

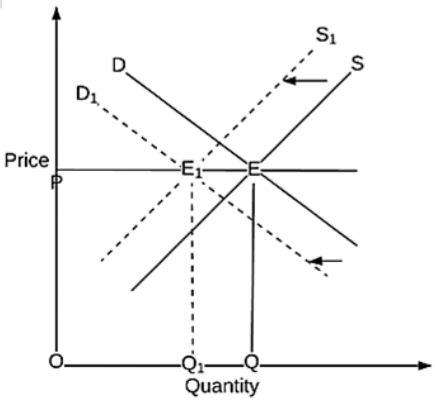
C. Increase in Demand< Increase in Supply



D is the initial demand curve and, is the initial supply Curve. E is the point of initial equilibrium. OP is the equilibrium price and is the equilibrium quantity. Due to the increase in demand, D is the new demand curve. Due to the increase in supply, S is the new supply curve.

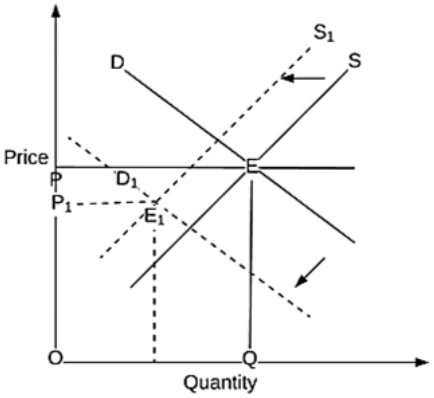
Simultaneous Decrease in Demand and Supply

Decrease in Demand = Decrease in Supply



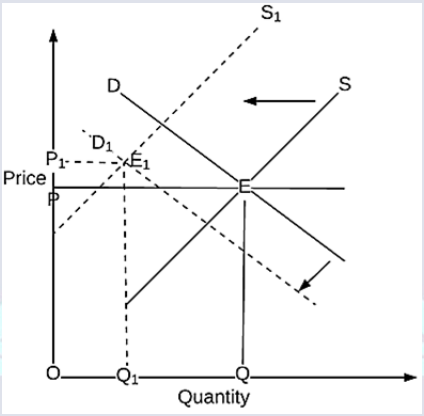
When decrease in demand is proportionately equal to decrease in supply, then leftward shift in demand curve from D to D_1 is proportionately equal to leftward shift in supply curve from SS to S_1S_1. The new equilibrium is determined at E_1 As demand and supply decrease in the same pro-portion, equilibrium price remains same at OP, but equilibrium quantity falls from OQ to OQ_1.

Decrease in Demand > Decrease in Supply



When decrease in demand is proportionately more than decrease in supply, then leftward shift in demand curve from D to D_1 is proportionately more than leftward shift in supply curve from S to S_1. The new equilibrium is determined at E_1, equilibrium price falls from OP to OP_1 and equilibrium quantity falls from OQ to OQ_1.

Decrease in Demand < Decrease in Supply



When decrease in demand is proportionately less than decrease in supply, then leftward shift in demand curve from D to D_1 is proportionately less than leftward shift in supply curve from S to S_1. The new equilibrium is determined at E^1 equilibrium price rises from OP to OP_1 whereas, equilibrium quantity falls from OQ to OQ_1.

Price Ceiling & Price Floor

Price Ceiling:

Price ceiling means the maximum price of a commodity that the seller can charge from the buyers the government fixes this price is much below the equilibrium market price of a commodity so that, it becomes within the reach of the poorer sections of the society.

Price Floor:

It means the minimum price fixed by the government for a commodity in the market. It seems paradoxical.

Rationing:

Under rationing system, a certain part of demand of the consumers is met at a price lower than the equilibrium price. Under this system, consumers are given ration coupons/ Cards to buy an essential commodities at a price lower than the equilibrium price from Fair price/ Ration Shop.

Black market:

It is a market under which the commodity is bought and sold at a price higher than the maximum price fixed by the government.

Class : 11th Economics (Microeconomics)
Chapter-5: Forms of Market

Forms of Market

Monopoly

Features
- One Seller,
- Large number of buyers,
- No close substitute,
- Barriers to Entry,
- Price Maker,

Meaning
A market situation in which there is only a single seller, e.g., Indian Railways

Oligopoly

Features
- Few Sellers
- Hornogeneuus and differentiated product
- Interdependence in decision-making,
- Non-price competition,
- Substantial harriers to entry of new firms,

Meaning
A Few large firms producing, homogeneous or differentiated product
Examples: Computer operating system, Oil and Gas Industry.

Monopolistic Competition

Features
- Large number of buyers & sellers,
- Product differentiation,
- Free entry and exit of firms,
- Perfect knowledge of the market.

Meaning
Large number of buyers & sellers differentiated product.
Examples- Restaurants, Hotels, etc.

Price Celing

- Maximum price fixed by the Government for a commodity.
- In India, price ceiling is generally imposed on necessary items wheat, racer kerosene oil etc.

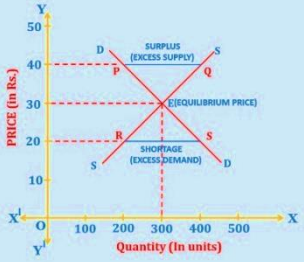
Price Floor

Minimum price fixed by the Government Above the equilibrium price,
Examples: Agricultural Price Support Programmes, Minimum Wage Legislation, etc.

Perfect Competition

Feature
- Large number of buyers & sellers
- Homogeneity of the product
- Free entry & exit of firms
- Perfect knowledge of the market

Determination of Market Equilibrium
E=Dx=Sx



Effect of Shifts in Demand and Supply

When only Demand Change
- When there is increase in demand, price increases
- When there is decrease in demand, price decreases

When only Supply Change
Price of the product falls and its quantity decreases

When only Demand & Supply both Change
- Price rises only when there is increase in demand mere than increase in supply.
- Price falls only when there is increase in supply more than the increase in demand.
- No price change, when increase in demand and supply is uniform.

Important Questions

Multiple Choice Questions-

1. Which is a characteristic of the market ?
- (a) One Area
- (b) Presence of both Buyers and Sellers
- (c) Single Price of the Commodity
- (d) All the above

2. Which is a basic for the classification of the market ?
- (a) Perfect Competition
- (b) Zero Competition (Monopoly)
- (c) Imperfect Competition
- (d) All the above

3. Which of the following is a feature of perfect competition ?
- (a) Large Number of Buyers and Sellers
- (b) Homogeneous Units of the Product
- (c) Perfect Knowledge of the Market
- (d) All the above

4. In which market product differentiation is found ?
- (a) Pure Competition
- (b) Perfect Competition
- (c) Monopoly
- (d) Monopolistic Competition

5. Which of the following is true in perfect competition ?
- (a) Firm is price-taker, not price-maker
- (b) Firm's demand curve is perfectly elastic
- (c) AR = MR
- (d) All the above

6. Which one is a feature of monopoly ?
- (a) Single Seller and Many Buyers
- (b) Lack of Close Substitutes
- (c) Restrictions of New Firm entry
- (d) All of these

7. Which one of the following is true for monopoly ?
- (a) Firm is price-maker
- (b) Demand curve slopes downward
- (c) Price discrimination possibility arises
- (d) All the above

8. Which one is a feature of monopolistic competition ?
- (a) Differentiated Product
- (b) Selling Cost
- (c) Imperfect Knowledge of the Market
- (d) All the above

9. A market in which there is free entry and exit, the market is:
- (a) Monopolistic Competitive Market
- (b) Imperfect Competitive Market
- (c) Perfectly Competitive Market
- (d) None of these

10. What does a monopolist market show ?
- (a) Production process
- (b) Distribution system
- (c) Nature of market
- (d) None of these

11. Price discrimination is found in which market ?
- (a) Pure Competition
- (b) Perfect Competition
- (c) Monopoly
- (d) Monopolistic Competition

12. Which of the following is the feature of pure competition ?
- (a) Perfect knowledge of the market
- (b) Perfect mobility of factors
- (c) Homogenity by products
- (d) All the above

13. Market situation where there is only one buyer is:
- (a) Monopoly
- (b) Monopsony
- (c) Duropoly
- (d) None of these

14. The concept of monopolistic competition is given by:
- (a) Hicks
- (b) Chamberlin
- (c) Mrs. Robinson
- (d) Samuelson

15. Which of the following is not a feature of perfect competition ?
    (a) Large number of buyers and sellers
    (b) Homogeneity of product
    (c) Advertisement and selling cost
    (d) Perfect knowledge of the market

Very Short Questions-

1. State whether the following statement is true or false. Give reason.
   When equilibrium price of a good is less than its market price, there will be competition among the sellers.
2. Give the meaning of equilibrium.
3. Define equilibrium price.
4. Product differentiation is in which market form?
5. What is the normal profit?
6. What is patent right?
7. Name two features of monopoly market.
8. What is a price taker company?
9. What is a price maker company?
10. What is cooperative oligopoly?

Short Questions-

1. Define the implication of the following:
   a) Interdependence between firms in Oligopoly
   b) A large number of sellers in perfect competition
2. Explain two features of the monopoly market.
3. Why is the number of firms small in oligopoly? Explain.
4. Explain the implications of a large buyer in a perfectly competitive market?
5. Explain the implications of the following:
   a) Interdependence between firms in oligopoly
   b) Large number of sellers in perfect competition
6. Explain briefly why a firm under perfect competition is a price taker not a price maker?
7. Market for a good is in an equilibrium. There is an increase in demand for this good. Explain the chain of effects.

   or

   At a given equilibrium in the market, explain the chain of effects, of increase in demand for a good.
8. Explain the changes that will take place when in a market the demand for a good is greater than supply at the prevailing price.
9. Explain why an equilibrium price of a commodity is determined at that level of output at which its demand equals its supply.
10. Suppose the price of a good is higher than equilibrium price. Explain the changes that will establish equilibrium price.

Long Questions-

1. What is excess demand for a good in a market? Explain its chain of effects on the market for that good use diagram.
2. Market for a product is in equilibrium. Demand for the product decreases. Explain the chain of effects of this change till the market again reaches equilibrium. Use diagram.
3. Market for a good is in an equilibrium. Suppose supply decreases. Giving reasons, explain its effects on equilibrium price and quantity. Use diagram.
4. Market of a commodity is in equilibrium. Demand for the commodity 'increases.' Explain the chain of effects of this change till the market again reaches equilibrium. Use diagram.
5. At a given price of a commodity, there is an excess supply. Is it an equilibrium price? If not, how will an equilibrium price be reached? Use diagram.

   or

   What is 'excess supply of a good in a market? Explain its chain of effects on the market for that good. Use diagram.
6. Market for good is an equilibrium. Explain the chain of reactions in the market if the price is(i) Higher than an equilibrium price (ii) Lower than an equilibrium price.

Answers Key

MCQ Answers-

1. (d) All the above
2. (d) All the above
3. (d) All the above
4. (c) Monopoly
5. (d) All the above

6. (d) All of these
7. (d) All the above
8. (d) All the above
9. (c) Perfectly Competitive Market
10. (c) Nature of market
11. (c) Monopoly
12. (d) All the above
13. (b) Monopsony
14. (b) Chamberlin
15. (c) Advertisement and selling cost

Very Short Answers:

1. True, when equilibrium price of a good is less than its market price, there will be competition among the sellers. At a price lower than market price, there will be excess supply, i.e. supply will be more than demand.
2. Equilibrium is a situation of the market in which demand for a commodity is equal to its supply, i.e. a situation, which is stable.
3. Equilibrium price is the price at which market demand is equal to market supply.
4. Monopolistic Market Competition
5. Normal profit is referred to as the minimum or least amount of profit which is required to keep an organisation engaged in the production process for the long run.
6. Patent right is an exclusive license or right conferred to an organisation to manufacture particular goods or services under a specific technology.
7. The two important features of monopoly market are.
   - There is only one seller in the market and can control the market on his own.
   - The seller can make huge profits as compared to the normal profit.
8. A price taker company are those companies who have no option but to accept the price determined by the industry.
9. A price maker company are those companies who can influence the price of a product on its own.
10. A cooperative oligopoly is a situation of the market where the different companies cooperate with each other in fixing the price of goods or services.

Short Answers-

1.
   a) Oligopolies are composed of a few large companies and these companies action can affect the market condition. Therefore, the other contender company will be aware of the market actions and will respond appropriately. Mutual interdependence survives when the action of one company has a significant impact on the other company in the industry.

   b) A perfectly competitive market is controlled by the existence of a large number of sellers and buyers of a product, which means no buyers or sellers whose purchase and sell is so large that it will impact the total purchase and sale in the market.

2. The following are the two most crucial characteristics of a monopoly market:
   i. **Sole Seller:** As there is only one seller in the market, the seller can influence the market price on its own. A business with market power can increase prices without losing its consumers or competitors.
   ii. **High Entry Barrier:** There exist entry hurdles for new enterprises, allowing sellers to earn abnormal profits that are far higher than usual earnings.
3. The fundamental reason for the minimal number of firms in an oligopoly is that there exist barriers that restrict firms from entering the industry. Patents, huge capital requirements, and ownership over crucial raw materials, among other things, prohibit new firms from entering the industry. Only those who can overcome these obstacles will be able to enter and remain in the market.

   Therefore, the numbers of firms are small in oligopoly.
4. A huge number of buyers are supposed to be so numerous that an individual buyer's percentage of total purchases is so insignificant that he cannot influence market price by purchasing more or less. As a result, the pricing remains unchanged.

   Every business in the industry would be earning only normal profits due to the large number of buyers. The buyers are the price takers and have no bargaining power in the market.
5. The implications of the above features are as follows
   a) Oligopolies are often made up of a few huge corporations. Because each firm is so huge, its actions have an impact on market

circumstances. As a result, rival firms will be aware of a firm's market activity and will respond properly. Mutual interdependence develops when one firm's actions have a significant impact on the other enterprises in the industry.

b) The presence of a large number of buyers and sellers of a commodity dominates a fully competitive market, which implies that there is no such buyer or seller in the market whose purchase or sale is so huge that it affects the overall sale or purchase in the market. Each buyer/seller owns only a little portion of the market demand/supply.

6. Because the price is set by market forces of demand and supply, a firm in perfect competition is a price taker rather than a price maker. This is referred to as the equilibrium price. At this equilibrium price, all firms in the industry must sell their outputs. The reason for this is that the number of enterprises in perfect competition is so high. As a result, no firm's supply can impact the price. Every company makes the same type of goods.

7. The given diagram shows a situation of increase in demand. The demand curve shifts to the right from DD to D_1D_1 An equilibrium point shifts from E to E_1 Consequently, an equilibrium price and an equilibrium quantity rises from OP to OP, and OQ to OQ1 respectively.

The chain effects of increase in demand When there is a increase in demand it creates excess demand (equal to O Q_2) at initial price OP and as a result of which price will rise. With rise in price, demand will start falling (according to Law of Demand) and supply will start rising (according to Law of Supply), this process will continue till the time we reach new equilibrium level at E_v where there is no excess demand.

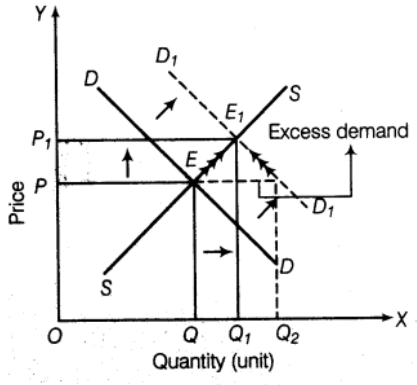


Diagram showing situation of excess demand

8. If at a prevailing price, quantity demanded is more than quantity supplied then supplier will motivate to increase the price of the commodity due to which demand decreases, till it reaches at the equilibrium price where quantity demanded is equal to quantity supplied.

9. An equilibrium is a point where quantity demanded is equal to quantity supplied and an equilibrium can be attained only at that point. If at a given price, supply is more, it will show excess supply and if demand is more, it will show excess demand. Due to excess supply price will fall and due to excess demand price will rise. Hence, price will be stable only at an equilibrium level where demand and supply both are equal.

10. When price prevailing in the market is higher than that of equilibrium price, demand will be less than supply i.e. there is excess supply in the market. Excess supply will force the market price to slide down causing extension of demand and contraction of supply. The process of an extension and contraction would continue till the equilibrium between supply and demand is struck.

Thus, an equilibrium price will be restored through the free play of market forces of demand and supply.

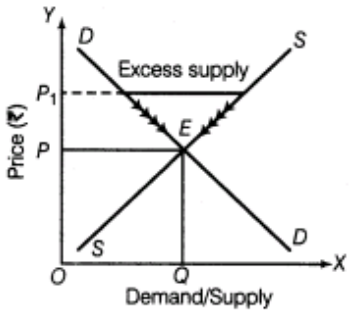


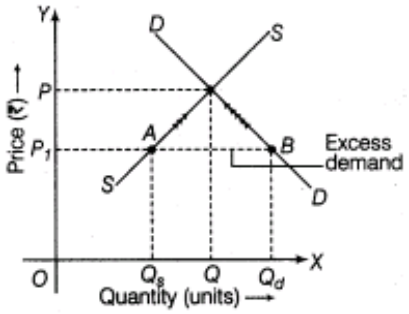
Diagram showing the situation of excess supply

Long Answers –

1. Excess demand refers to the situation in which market demand excess market supply corresponding to a particular price. By definition, equilibrium price refers to the price at which market demand equals market supply, excess demand in the market will create competition among the buyer, which will push price upwards, causing contraction in demand (by Law of Demand) and extension in supply (by Law of Supply).

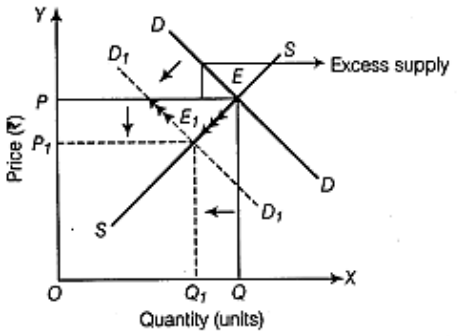
This process will continue till the equilibrium is achieved, where again market demand equals market supply. Thus, an equilibrium price will be

restored through the free play of market forces. As shown in the diagram below:



In the above diagram DD and SS are demand and supply curves respectively and equilibrium is at point e where demand equals supply with equilibrium price OP and quantity OQ. Any price below OP will create excess demand S of OP1 where demand equals OQ_d and supply is OQ_s, creating excess demand equal to $Q_d - Q_s$, causing price to rise to reach at OP

2. Effects of decrease in demand of a commodity on equilibrium price and quantity is discussed below with reference to the given figure.



In the given figure, DD and SS are the initial demand curve and supply curve respectively. £ is the initial equilibrium point, OQ is the equilibrium quantity and OP is the equilibrium price. Decrease in demand implies a shift in demand curve to the left. It is indicated by This sets in the following chain of effects.

Decrease in demand implies that less is supplied at the existing price. Given the supply, price of the commodity will tend to decrease from OP to OP_1 Fall in price will cause tend to decrease from OP to OP_1 Fall in price will cause extension of demand and contraction of supply. Here, equilibrium quantity also decreases from OQ to OQ_1.

3. A fall in supply will shift the supply curve to the left. These causes a situation of deficiency of supply (or a situation of excess demand). Accordingly, price tends to rise. In response to rise in price, demand tends to contract and supply tends to extend. This process (of contraction of demand and extension of supply) will continue till, price is reached where quantity demanded is equal to quantity supplied. This occurs at new equilibrium point E1.

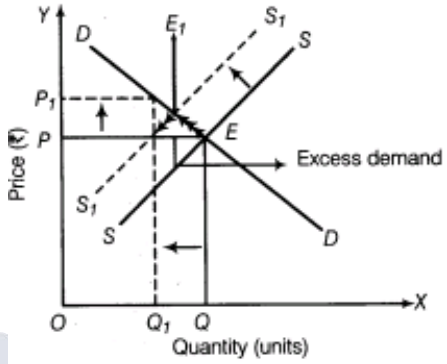
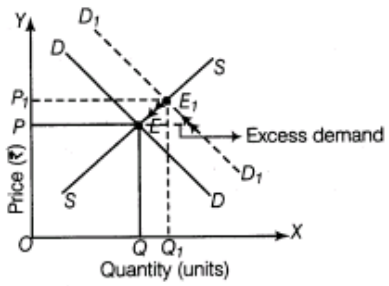


Diagram showing effects on equilibrium price and quantity

4. Effects of increase in demand of a commodity on equilibrium price and quantity is discussed below with reference to the given figure.

In the above figure, DD and SS are the initial demand curve and supply curve respectively. E is the initial equilibrium point, OQ is the equilibrium quantity and OP is the equilibrium price. Increase in demand implies a shift in demand curve to the right. It is indicated by D_1D_1 This sets in the following chain of effects.

Increase in demand implies that more supplied at the existing price. Given supply, price of the commodity will tend to increase from OP to OP_1 Rise in price will cause contraction of demand and extension of supply. Here, equilibrium quantity also increases from OQ to OQ_1

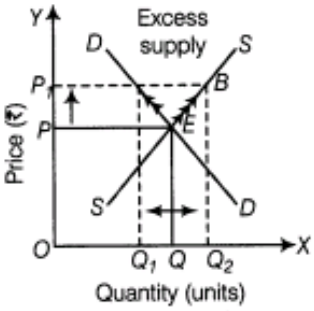


5. By the definition, an equilibrium price refers to the price at which market demand is equal to market supply (i.e. there is no excess demand or excess supply).

When price prevailing in the market is higher than an equilibrium price, demand will be less than supply i.e. there is excess an supply in the market. Excess supply will force the market price to slide down causing an extension of demand and

contraction of supply. The process of an extension and contraction would continue till the equilibrium between supply and demand is struck. Thus, an equilibrium price will be restored through the free play of market forces.

No, the price with excess supply is not an equilibrium price. This can be illustrated with the help of the given diagram.



Determination of equilibrium price

6. **(i) Higher than an equilibrium price:** When price prevailing in the market is higher than that of equilibrium price, demand will be less than supply i.e. there is excess supply in the market. Excess supply will force the market price to slide down causing extension of demand and contraction of supply. The process of an extension and contraction would continue till the equilibrium between supply and demand is struck.

Thus, an equilibrium price will be restored through the free play of market forces of demand and supply.

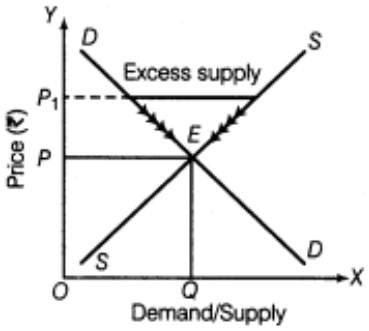


Diagram showing the situation of excess supply

1. **(ii) Lower than an equilibrium price:** In a situation of excess demand, consumers are willing to buy greater amount of a community than what the producers are willing to sell. Accordingly, price of the commodity will be pushed up. This will cause expansion of supply and contraction of demand. This process will continue till demand becomes equal to supply and the equilibrium is struck in the market. The market will reach the point of an equilibrium at a higher price than in a situation of $n excess demand.

6

Non-Competitive Markets

Introduction

This chapter explains noncompetitive market forms (monopoly, monopolistic competition and oligopoly), their features and differences.

Monopoly

1. Meaning

(a) 'Mono' means single and 'poly' means seller, i.e., single seller.

(b) Monopoly is a market situation where there is a single firm selling the commodity and there is no close substitute of the commodity sold by the monopolist.

2. Reasons of Monopoly:

(a) Grant of patent rights:

i. When a company introduces a new product or new technology it applies to the government to grant it patent certificate by which it gets exclusive rights to produce new product or use new technology.

ii. Patent rights prevent others to produce the same product or use the same technology without obtaining license from the concerned company. Patent rights are granted by the government for a certain number of years.

iii. For example, Patent certificate was granted to Xerox company for copying machines invented by it, thereby giving rights to monopoly.

(b) Licensing by Government:

i. A monopoly market emerges when government gives a firm license, i.e. exclusive legal rights to produce a given product or service in a particular area or region.

ii. For example Previously Delhi Vidyut Board (Govt. Board) had the exclusive right to distribute electricity in Delhi. Now after privatization the same rights have been given to two private companies with exclusive areas to serve.

(c) Forming a Cartel:

i. A Cartel is a group of firms which jointly set output and prices so as to exercise monopoly power.

ii. For example, In 1960, some oil producing companies formed a cartel, called OPEC (Organisation of Petroleum Exporting Countries).

3. Features of Monopoly

a. Single Seller

i. There is only one seller or producer of a commodity in the market.

ii. As a result, the monopoly firm has full control over the supply of the commodity.

iii. The monopolist may be an individual, a firm, a group of firms or a government itself.

iv. Naturally, a monopoly firm can exploit buyers by charging almost any price for its product because of exclusive control over the product.

v. Monopoly firm itself is the price maker and not the price taker.

b. Absence of close substitutes of product

i. The product sold by the monopolist has no close substitute.

ii. Though, some substitutes of the product may be available, yet they are not close substitutes in the sense that such substitutes are not identical products.

c. Difficult entry of a new firm

i. The monopolist controls the situation in such a way that it becomes very difficult for a new firm to enter the monopoly market and compete with the monopolist by producing the same product.

ii. The monopolist tries his utmost to block entry of a new firm.

d. Price Discrimination

Price discrimination refers to the practice of charging different prices from different buyers at the same time for the same product.

e. Price Maker

i. A monopoly firm has market power and is itself a price-maker. It can choose any price, it likes.

ii. Unlike perfect competition where as output increases, price remains unchanged.

iii. In monopoly as output increases or decreases, price changes according to what consumers are willing to pay along the demand curve. It produces and supplies a product to satisfy the entire market.

iv. It is because a monopoly firm faces the entire demand of the market, that market demand curve is said to be a constraint facing a monopoly firm.

4. Shape of demand curve under monopoly

i. As we know in monopoly there is a single seller or firm, that is why like an industry, single seller constitutes the entire market for the product, which has no close substitutes.

ii. So, a monopolist has full freedom and power to fix price for the product.

iii. However, demand of the product is not in the control of monopoly firm. In order to increase the output to be sold, monopolist will have to reduce the price because of price discrimination.

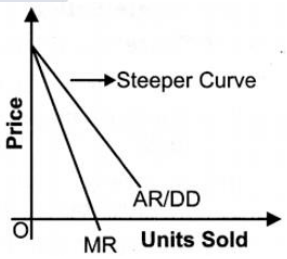
iv. Therefore, a monopoly firm faces a downward sloping demand curve.

v. The elasticity of demand curve is inelastic because of no close substitute of a commodity.

5. Shape of Average revenue and marginal revenue curve under monopoly

(a) A monopoly firm faces a downward sloping demand curve as more output can be sold only by reducing the price because of price discrimination.

(b) As, we know, Price = Average revenue. So, when price falls means Average revenue falls and when Average revenue fall, then marginal revenue also falls but at a much faster rate. So, Marginal Revenue(MR) is less than Average Revenue (AR).



Monopolistic Competition

1. Meaning

(a) It refers to a market situation in which there are many firms which sell closely related but differentiated products.

(b) Market for such products are toothpaste, soap, air conditioners etc.

(c) The market is called monopolistic competition since it contains both the competitive element and monopoly element.

2. Features of monopolistic competition

(a) A large number of firms:

(i) The number of firms selling similar product is fairly large, but not very large as in perfect competition.

(ii) As a result, firms are in a position to influence the price of their product due to their branji names.

(b) Product differentiation:

(i) In this type of market situation a producer can produce different products, but that products should be a close substitute to each other.

(ii) Product differentiation means differentiating the product on the basis of brand, colour, shape etc.

(iii) Due to product differentiation each firm under monopolistic competition is in a position to exercise some degree of monopoly (inspite of large number of sellers) because buyers are willing to pay different prices for the same product produced by different firms.

(iv) No doubt, producer has a control over a price, but he knows it very well to maximize the profit price has to be reduced. So, price falls under monopolistic competition due to product differentiation.

(c) Selling cost:

(i) It is the expenses which are incurred for promoting sales or inducing customers to buy a good of a particular brand.

(ii) This includes the cost of advertisement through newspaper, television and radio, and cost on each other sales promotional activities.

(d) Free entry and exit of firms:

(i) New firms can enter the market, if found profitable. Similarly, inefficient firms already operating in the market are free to quit the market if they incur losses.

(ii) It is because of this feature that like perfect competition, monopolistic competition also gives rise to normal profit.

(iii) No firm receives abnormal profit in the long run as then new firms can emerge and old ones can expand output and adjust supply with changing demand.

3. Shape of Demand Curve Under Monopolistic Competition

(i) The demand curve faced by a firm is negatively slope, (i.e. when price falls, demand rises) because the firm can sell more only by lowering the price of its product because of product differentiation.

Oligopoly

1. Meaning:

i. The term oligopoly is derived from two Greek words: 'oligoi' means few and 'poleein' means 'to sell.'

ii. Oligopoly is a market situation in which an industry has only a few firms (or few large firms producing most of its output) mutually dependent for taking decisions about price and output.

iii. William Fellner defines oligopoly as "Competition among the few".

iv. In India, markets for carbonated beverages, "National Newspapers" market, mobile services provider, washing products, automobiles, cement, aluminium, etc., are the examples of oligopolistic market. In all these markets there are few firms for each particular product.

2. Types of Oligopoly:

(a) Pure or Perfect Oligopoly:

(i) In the case of pure oligopoly, firms produce homogenous products like copper, iron, steel and aluminium.

(ii) So, decisions by consumers to purchase the goods of a particular firm are influenced by the price considerations.

(b) Imperfect or Impure or Differentiated Oligopoly:

(i) In differentiated oligopoly, firms produce differentiated products such as toilet soap, cigarettes or soft drinks.

(ii) The goods produced by different firms have their own distinguishing characteristics, but they are close substitutes of each other.

(c) Collusive Oligopoly: If the firms cooperate with each other in determining price or output or both, it is called collusive oligopoly or cooperative oligopoly.

(d) Non-collusive Oligopoly: If firms in an oligopoly market compete with each other, it is called a non-collusive or non-cooperative oligopoly.

3. Features of Oligopoly

(a) Few Large Sellers:

(i) The number of sellers in an oligopoly market is small – when there are two or more than two, but not many sellers.

(ii) What matters is that these few sellers account for most of the industry's sales.

(iii) These "few" sellers consciously dominate the industry and indulge in intense competition. Each firm is aware of that it possesses a large degree of monopoly power.

(iv) For example, the market for mobile service provider in India is an oligopolist structure as there are only few producers of mobile service provider. There exists severe competition among different firms and each firm tries to manipulate both prices and volume of production to outsmart each other.

(b) Interdependence of Decisions:

(i) Interdependence means that actions of one firm affects the actions of other firms.

(ii) Since the number of sellers is small, each firm has to take into consideration the possible reaction of its competitors, when making decisions.

(iii) The business decision of a single seller will have a substantial impact on the product price, output and profits of the rival firms.

(iv) For example in the "National Newspapers" market, when the "Economic Times" introduced invitation pricing policy—they offered the newspaper at a price of Rs.1.50 on weekdays. The Hindustan Times was forced to reduce its prices from Rs. 2.50 per copy to ? 1.50 per copy on weekdays. When Hindustan Times was celebrating its 75 years of service, they offered the newspaper at Rs. 1/- weekdays. The Times of India responded by matching the price cut.

(c) Non-Price Competition:

(i) Oligopoly firms try to avoid price competition for the fear of price war.

(ii) They use non-price competition methods like better services to customers, advertising, etc. to compete with each other.

(iii) Oligopoly firms are in a position to influence the prices. However, they follow the policy of price stability or price rigidity.

(iv) Price rigidity refers to a situation in which whether there is change in demand and supply the price tends to stay fixed.

(v) If a firm tries to reduce the price the rivals will also react by reducing their prices. Likewise, if it tries to raise the price, other firms will not do so. It will lead to loss of customers for the firm which intended to raise the price.

So, firms prefer non-price competition instead of price competition.

(d) Barriers to the entry of firms:

(i) The main reason why the number of firms is small is that there are barriers which prevent entry of firms into industry.

(ii) Patents, large capital, control over the crucial raw material etc., prevent new firms from entering into industry.

(iii) Only those who are able to cross these barriers are able to enter.

(e) Role of selling costs:

(i) Due to severe competition and interdependence of the firms various sales promotion techniques are used.

(ii) For example, T.V. commercials war between pepsi and coke.

(iii) It relies more on non-price competition.

(f) Oligopoly firms may produce either a homogeneous or a differentiated product.

(i) Oligopoly firms may sell homogeneous products such as steel, aluminium, LPG cylinders etc. They are called pure oligopolies, as the products of the respective firms are indistinguishable.

(ii) Firms producing differentiated products are called impure oligopolies.

(iii) In case of a pure oligopoly market situation rival firms will rely on "price" or "lowercosts" to compete in the market.

(iv) On the other hand, in case of impure oligopolies, with firms producing differentiated products, firms can use "product variations" and "promotional" strategies to compete.

(g) Group Behaviour:

(i) In an oligopoly situation, there are a few firms who control the entire market and each firm recognizes interdependence in their decision-making.

(ii) So, price-output decisions of a particular firm directly influence the competing firms.

(iii) Instead of independent price and output strategy, oligopoly firms prefer group decisions that will protect the interest of all the firms.

(iv) Group Behaviour means that firms tend to behave as if they were a single firm even though individually they retain their independence.

(h) Indeterminate demand curve facing an oligopoly firm:

(i) The most distinguishing feature of oligopoly is the "interdependence in decision making" of the rival firms.

(ii) The consequence of such interdependence is the high degree of uncertainty regarding the reaction pattern of rival oligopolists.

(iii) Interdependence and uncertainly result in "indeterminateness of the demand curve" facing an oligopolist. The firm cannot assume that his rivals will not react to its decision regarding change in its variables.

(iv) The demand curve facing an oligopoly firm keeps shifting as rival firms react to changes made by this firm. The demand curve thus loses its definiteness and determinateness.

Important Questions

Multiple Choice questions:

1. Which of the following is not the feature of an imperfect competition?
   (a) Large number of buyers
   (b) Single seller
   (c) Homogeneous products
   (d) Price maker
2. A monopolist is a price
   (a) Acceptor
   (b) Taker
   (c) Giver
   (d) Maker
3. The firm and the industry are one and the same in:
   (a) Monopolistic competition
   (b) Monopoly
   (c) Duopoly
   (d) Oligopoly
4. Which of the following is not a characteristic feature of imperfect competition?
   (a) Prices vary from seller to seller
   (b) All the products are homogeneous
   (c) Profits of the seller is included in the price
   (d) None of above
5. Market which has two firms is known as
   (a) Duopoly
   (b) Monopolistic Competition
   (c) Oligopoly
   (d) None of These
6. Under which of the following forms of market structure a firm has no control over the price of its product?
   (a) Monopoly
   (b) Perfect competition
   (c) Oligopoly
   (d) Monopolistic competition
7. Oligopoly having identical products is known as
   (a) Pure oligopoly
   (b) Collusive oligopoly
   (c) Independent oligopoly
   (d) None of above
8. Price discrimination can take place only in
   (a) Perfect competition
   (b) Oligopoly
   (c) Monopolistic competition
   (d) Monopoly
9. Which market have characteristic of product differentiation
   (a) Monopolistic competition
   (b) Oligopoly
   (c) Monopoly
   (d) Perfect competition
10. Under monopoly form of market, TR is maximum when
    (a) MR is maximum
    (b) MR < 0
    (c) MR > 0
    (d) MR is zero

Very Short:

1. What would be the shape of the demand curve so that the total revenue curve is a positively sloped straight line passing through the origin?
2. What would be the shape of the demand curve so that the total revenue curve is a horizontal line?
3. Will the monopolist firm continue to produce in the short run if a loss is incurred at the best short run level of output?
4. Explain why the demand curve facing a firm under monopolistic competition is negatively sloped.
5. List the three different ways in which oligopoly firms may behave.

Short Questions:

1. Equilibrium price of an essential medicine is too high. What can be done to bring the price down only through market forces? Explain the series of changes that will occur in the market.
2. Market for a necessary good is competitive in which the existing firms are earning supernormal profits. How can the policy of liberalisation by the government help in making the market more competitive in the interest of the consumers? Explain.
3. Explain the effects of a 'price ceiling'.
4. Explain the effects of a 'price floor'.

5. Market for goods is in equilibrium. Demand for the good "increases". Explain the chain effects of this change.

Long Questions:

1. Distinguish between collusive and non-collusive oligopoly. Explain how the oligopoly firms are interdependent in taking price and output decisions.
2. Explain the implications of the following features of the oligopoly market.
   (i) Few firms
   (ii) Barriers to the entry of firms
3. Explain the implications of the following:
   (i) Products under monopolistic competition
   (ii) Large number of sellers under perfect competition
4. Distinguish between perfect competition and monopolistic competition
5. Explain the implications of the following features of perfect competition.
   (i) Homogenous products
   (ii) Freedom of entry and exit to firms.

Answers Key

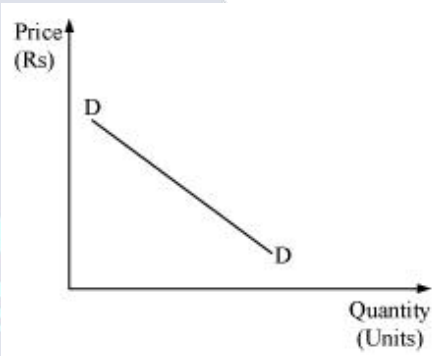
MCQ Answers:

1. (c) Homogeneous products
2. (d) Maker
3. (b) Monopoly
4. (b) All the products are homogeneous
5. (a) Duopoly
6. (b) Perfect competition
7. (a) Pure oligopoly
8. (d) Monopoly
9. (a) Monopolistic competition
10. (d) MR is zero

Very Short Answers:

1. If the total revenue curve is a positively sloped straight line passing through the origin, then the slope of the demand curve will be a horizontal line parallel to the *x*-axis.

2. If the total revenue curve is a horizontal line, then the demand curve will be downward sloping.



3. A monopolist firm can earn losses in the short run if the price is less than the minimum of AC. But if the price falls below the minimum of AVC, then the monopolist will stop production. The firm will continue to produce when the price is in between the minimum of AVC and the minimum of AC.
4. A monopolistic firm has differentiated products; thus, it has to lower its price in order to increase its sales. Further, the products of different monopolistic firms are close substitutes to each other. Hence, the demand for all the products is elastic. For this reason, the demand curve is negatively sloped.
5. Oligopoly firms may behave in the following three ways:
   1) Cartel
   2) Informal understanding
   3) Advertisement and differentiated product

Short Answers-

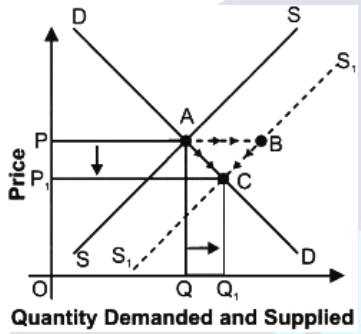
1. Since medicine is a necessary good, its demand will be perfectly elastic.

Following are the possible steps that can be taken to bring down the equilibrium price:

(i) The government should provide subsidy on the production of such medicines.

(ii) The government should cut down or abolish all the taxes on such medicine.

(iii) The government should offer various facilities to industrialists to motivate them for the production of such medicine. These facilities will reduce the cost of inputs used in the production of medicines. The effect of above steps will be that supply of such medicines will increase and as the result of, the equilibrium price of medicines will reduce as shown in the given figure.



In the given figure price is on vertical axis and quantity demanded and supplied is on horizontal axis. But due to increase in supply the supply curve shifts rightward from SS to S_1S_1. With new supply curve S_1S_1, there is excess supply at initial price OP because at price OP, supply is PB and demand is PA, so there is excess supply of AB at price OP. Due to this excess supply competition among the producer will make the price fall. Due to this fall in price there is downward movement along the supply curve (Contraction in supply) from B to C and similarly, there is downward movement along the demand curve (Expansion in demand) from A to C. So, finally, equilibrium price falls from OP to OP_1 and equilibrium quantity rises from OQ to OQ_1

2. The liberalization strategy promotes new enterprises to enter the industry. This boosts the industry's overall output. The total market demand stays steady, and prices begin to fall. As a result, consumers receive things at significantly lower prices.

Liberalization policies will remove market barriers such as licensing quotas. As a result, new firms will enter the industry. This will increase market supply and make the market more competitive. Inferring a shift to the right in the market supply curve. Other things being equal, a rightward shift in the market supply curve will result in a decrease in equilibrium price and an increase in equilibrium quantity. Extraordinary profits will eventually be wiped out, and consumers can expect to enjoy a greater quantity at a lower price.

3. Black marketing can be defined as a direct result of a price ceiling. It denotes a circumstance in which a commodity subject to the government's control policy is illegally sold at a greater price than that set by the government. It may occur primarily as a result of the presence of consumers who are willing to pay a higher price for the commodity rather than go without it.

4. Buffer stock is an important instrument in the government's arsenal for ensuring a price floor or minimum support price. If the market price is less than what the government believes should be paid to farmers or producers. This will cause them to purchase the product at a higher price from the farmers or producers in order to have stock of the commodity on hand in case of future shortages.

5. 'Given equilibrium, demand rises,' the following are the chain effects of the change:

i. If the price remains constant, excess demand emerges.

ii. As a result of the increased rivalry among purchasers, prices rise.

iii. A price increase produces a decrease or contraction in demand and an increase or expansion in supply.

iv. The price continues to rise until the market returns to equilibrium at a higher price.

Long Answers-

1. The following points focus on the distinction between collusive and non-collusive oligopoly:

There is also a significant degree of interconnectedness between enterprises in an oligopoly. The price and production policy of one firm has a significant impact on the price and output policy of the market's rival enterprises. The reason for this is that there are only a few large corporations. When one company cuts its pricing, competitors may follow suit in order to compete. On the other hand, if one company raises the price of a specific commodity, rival enterprises may make a decision in response. Enterprises always consider the likely reaction of the market's dominant rival companies when making price and output decisions.

2. The implications of the given features of oligopoly market are as follows:

(i) Oligopoly occurs when there are just a few firms in a market. However, each company is so large that it has a monopoly on a specific customer section of the market. It is so significant that the price or production policy of one firm has a direct impact on the price and output policy of competitors. As a result, drawing a precise demand curve for an oligopoly firm is likewise impossible. We have shown that oligopolistic enterprises seek to form trusts and cartels in order to avoid market pricing competition. They benefit from monopoly earnings in this manner. However, this is a very small proportion of the whole market.

(ii) It is usually more when there are barriers to firm admission. These restrictions are nearly identical to those seen in monopolistic circumstances. It is highly difficult, but not impossible, for a new firm to enter the market. These barriers might be natural, such as the need for large amounts of cash or the need to operate at the lowest possible cost, or artificial, such as patent rights. They mostly keep new entrants out of the market.

3. (i) When a product is subject to monopolistic competition, this has ramifications. It is a distinguishing trait. A product is frequently differentiated by trade marks or brand name, size, number, and so on. The differentiated products are typically close alternatives for each other. Bagh bakri tea and Tajmahal tea are two examples. Because of product differentiation, each firm can choose its own price policy. As a result, each firm has a limited amount of control on the pricing of its product. This is done to entice buyers from competing companies. Also, because these companies produce in large quantities and their products are unique, they always have some devoted customers who buy these things and just these products.

(ii) When there are a lot of sellers on the market. In an economy, there are always more consumers and sellers. As a result, the size of each economic agent in comparison to the market is so small that they cannot influence the price through their individual actions.

4. The following are the distinctions between perfect and monopolistic contest:

Basis of difference	Perfect competition	Monopolistic competition
Number of buyers and sellers	In this case, there are large number of buyers and sellers in the market.	There are many buyers and sellers in this market, but it is not a perfectly competitive market.
Products	In this case, products are homogenous.	In this case, products are heterogeneous.
Slops of firm's DD curve	In this case, horizontal straight line (AR = MR) is present.	In this case, it slops downward with significant flexibility (AR > MR)
Mobility	Perfect movement in this case.	Imperfect movement in this case.
Selling cost	In this case, selling cost is not very important.	It is significant in this case because it has monopoly prices.
Degree of price control	In this case, there is no pricing control.	

5. **Ans:** (i) The ramifications of homogeneous products are significant. This essentially means that the products are the same in terms of nature, quality, size, shape, and color. As a result, no producer is able to demand a different price for the product. The market has consistent pricing. Commodity must always be identical in a totally competitive market. As a result, it gives consumers or buyers no incentive to prefer one seller's product over another.

(ii) Enterprises have the freedom to enter and quit the market. When a company decides to depart or enter a market, it is entirely up to them. In this case, enterprises can only generate regular profits in the long run, with TC=TR, AR=MR, and P=MC. In exceptional circumstances, if typical profits are achieved, new firms will enter the industry, resulting in an increase in market supply. Marek's price will fall, and any extra earnings will be lost. In the event of unusually large losses, some of the existing enterprises will abandon the industry. Marek supply will be reduced, and the commodity's market price will rise. Extraordinary losses will be erased.