SECTION A
COURSE DESCRIPTION

Introduction to Managerial Economics: Managerial Economics: Meaning, Nature, Scope, & Significance. Relationship of Managerial Economics with Statistics.

Fundamental Concepts: Opportunity Costs, Incremental Principle, Time perspective, Discounting and Equi-Marginal principles. Theory of the Firm: Firm and Industry.

Demand and Supply Analysis: Theory and Law of Demand, Individual and Market Demand, Determinants of Demand, Concept of Elasticity of Demand, Types of elasticity of demand, Uses of elasticity of demand for Managerial decision making, Measurement of elasticity of demand. Concept of Demand Forecasting, Methods – Qualitative and Quantitative (basic concepts only).

Supply – Law of Supply, Its determinants and Elasticity of supply.

Cost Analysis and Pricing Approach: Cost - Concept and Types of Costs, Short Run Cost Analysis

- Fixed, Variable, Total, Average and Marginal Cost Curves. Long Run Cost Analysis - Economies and Diseconomies of Scale, Factors affecting cost at Micro-level. Full cost pricing, Product line pricing, Product lifecycle pricing. Pricing Strategies: Price Skimming, Penetration Pricing, Differential Pricing, Promotional Pricing, etc.

Production and Utility analysis: Concepts, production function with one variable input - Law of

Variable Proportions. Production function with two variable inputs and Laws of returns to scale. Consumer behavior and Surplus. Marginal Utility Analysis, Economies of scale.

Market structure and pricing practices: Perfect Competition: Features, Pricing under perfect competition. Monopoly: Features, Pricing under monopoly. Price Discrimination. Monopolistic Competition: Features, Pricing under monopolistic competition, Product differentiation. Oligopoly:

Features, Kinked demand Curve, Cartels, Price leadership.

Concepts of National Income, Index Number and Business Cycle: National Income- Concept, GNP,NNP,GDP,PCI Methods and difficulties in Measurement of National Income.

Review of index Number- Meaning, Importance and

Limitations. Meaning and Features of Business Cycles,

Phases of Business Cycles

Profits: Determinants of Short-term & Long-term profits. Classification - Measurement of Profit.

Break Even Analysis - Meaning, Assumptions, Determination of BEA, Limitations, Uses of BEA in Managerial decisions.

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M-102: MANAGERIAL ECONOMICS

Unit-I (Introduction to Managerial Economics)

Q.1. Define Economics.

Ans. Adam Smith, the Father of Economics, defined economics as the study of nature and uses of national wealth.

Dr. Alfred Marshall, one of the greatest economists of the nineteenth century, writes "Economics is a study of man's kind in the ordinary business of life: it enquires how he gets his income and how he uses it".

Q.2. What do you understand by Micro and Macro Economic Analysis?

Ans. The micro-economic analysis deals with the problems of an individual firm, industry, consumer, etc. In the case of managerial economics, micro-economics helps in studying what is going on within the firm.

Macro Economics is that branch of economics which studies the behaviour of not one particular unit, but of all units combined together.

Q.3. Define Managerial Economics.

Ans. **DEFINITION:** In the words of Spencer and Siegelman: "Managerial economics is the integration of economic theory with business practice for the purpose of facilitating decision-making and forward planning by management."

Q.4. Explain the meaning and nature of Managerial Economics.

Ans. Managerial Economics is economics applied in decision-making. It is that branch of economics which serves as a link between abstract theory and managerial practice. It is based on economic analysis for identifying problems, organising information and evaluating alternatives. Economics as a science is concerned with the problem of allocation of scarce resources among competing ends.

Managerial economics is concerned with the business firm and the economic problems that every business management need to solve. The other features of managerial economics are explained as below:

- Close to microeconomics
- Operates against the backdrop of macroeconomics
- Normative statements
- Prescriptive actions
- Applied in nature
- Interdisciplinary

Q.5. What is the scope of Managerial Economics?

Ans. Managerial economics has a close connection with economic theory (micro-economics as well as macroeconomic) operations research, statistics, mathematics and the theory of decision-making. Managerial economics also draws together and relates ideas from various functional areas of management like production, marketing, finance and accounting, project management, etc. A professional managerial economist has to integrate concepts and methods from all these disciplines

and functional areas in order to understand and analyse practical managerial problems. In so far as managerial economics is concerned, the following aspects constitute its subject-matter:

- Objectives of a business firm
- Demand analysis and Demand forecasting
- Production and Cost
- Competition
- Pricing and Output
- Profit
- Investment and Capital Budgeting and
- Product Policy, Sales Promotion and Market Strategy.

Q.6. How is Managerial Economics related with Statistics?

Ans. Managerial Economics needs the tools of statistics in more than one way. A successful businessman must correctly estimate the demand for his product. He should be able to analyses the impact of variations in tastes. Fashion and changes in income on demand only then he can adjust his output. Statistical methods provide and sure base for decision-making. Thus statistical tools are used in collecting data and analyzing them to help in the decision making process.

Statistical tools like the theory of probability and forecasting techniques help the firm to predict the future course of events. Managerial Economics also make use of correlation and multiple regressions in related variables like price and demand to estimate the extent of dependence of one variable on the other. The theory of probability is very useful in problems involving uncertainty.

Q.7. What is the significance of Managerial Economics?

Ans. Managerial economics is concerned with decision-making of economic nature. This implies that managerial economics deals with identification of economic choices and allocation of scarce resources.

- Managerial economics is goal-oriented and prescriptive. It deals with how decisions should be made by managers to achieve the organisational goals.
- Managerial economics is pragmatic. It is concerned with those analytical tools which are useful in improving decision-making.
- Managerial economics in normative rather than positive in character. It is prescriptive rather than descriptive. That is, it is concerned with the type of decisions that the firm should take in order to prosper, which involves value judgments and not a mere description of behaviour of the firm.

Q.7. What do you understand by Normative and Positive Approach in Economics.

Ans. Whether one is using micro-economic analysis or macro-economic analysis, one can take recourse to positive approach or normative approach or both. Positive approach concerns with what is, was, or will be, while normative approach concerns with what ought to be. The statement, “a government deficit will reduce unemployment and cause an increase in prices” is a hypothesis in positive economics, while the statement “in setting policy, unemployment ought to matter more than inflation” is a normative hypothesis.

UNIT-II (Fundamental Concepts)

Q.1. What are the Fundamental Concepts of Economics?

Ans. Economic theory provides a number of concepts and analytical tools which can be of considerable help to a manager in taking scientific decisions and business planning. The basic concepts which form the basis of managerial economics are the following:

- Incremental reasoning
- Opportunity cost
- Time perspective
- Time value of money- Discounting principle and
- Equi-marginal Principle

Q.2. What is the concept of opportunity cost? Explain.

Ans. Resources being scarce, we cannot have everything we want. We are, therefore, forced to make a choice. If we want to choose to have more of one thing, it will be necessary to have less of the other thing. For ex:- id the firm wants to produce more of good X then(given resources) it will produce less of good Y. Thus, producing a greater amount of X has opportunity cost of producing less Y. Opportunity cost of a decision is the sacrifice of alternatives required by that decision. Sacrifice of alternatives is involved when carrying out a decision requires using a resource that is limited in supply with the firm. Opportunity cost, therefore, represents the benefits or revenue forgone by pursing one course of action rather than another. When a choice is made in favour of a particular alternative that appears to be most desirable of all the given alternatives, it obviously implies that the best alternatives which has been sacrificed due to the best alternative is known as opportunity cost of the best alternative.

Q.3. Explain the concept of incremental reasoning.

Ans. The incremental reasoning involves estimating the impact of decision alternatives. The two basic concepts in the incremental analysis are: incremental cost and incremental revenue. Incremental cost may be defined as the change in total cost as a result of change in the level of output, investment, etc. Incremental revenue is a change in total revenue resulting from a change in the level of output, price etc.

Q.4. What is the concept of time perspective? Explain.

Ans. Economists often make a distinction between short run and long run. They use these terms with a precision that is often missed in ordinary discussion. By short run they mean that period within which some of inputs(called fixed inputs) cannot be altered, while in the long run all the inputs can be changed (i.e., there are no fixed inputs). Thus, in the short run, change in output can be achieved by changing the intensity of use of fixed inputs, while the same can be achieved in the long run by adjusting the scale of output, size of the firm, etc., Economists try to study the effect of policy decisions on variables like prices, costs, revenue, etc., in the light of these time distinctions.

Q.5. Explain the concept of discounting principle.

Ans. This concept is, in a way, an extension of the concept of time perspective. Since future is unknown and incalculable, there is a lot of risk and uncertainty about future. Moreover, the return in future is less attractive than the same return today. The future must, therefore, be discounted both

for the elements of delay and risk of future. The concept of discounting future is based on the fundamental fact that a rupee now is worth more than a rupee earned a year after.

Q.6. What do you understand by the concept of Equimarginal principle?

Ans. The equimarginal principle states that consumers will choose a combination of goods to maximise their total utility. This will occur where:

- The consumer will consider both the marginal utility MU of goods and the price.
- In effect, the consumer is evaluating the MU/price.
- This is known as the marginal utility of expenditure on each item of good.

Q.7. What is the concept of Theory of the firm? Explain.

Ans. Theory of the Firm:

In neoclassical economics—an approach to economics focusing on the determination of goods, outputs, and income distributions in markets through supply and demand—the theory of the firm is a microeconomic concept that states that a firm exists and make decisions to maximize profits.

A firm maximizes profits by creating a gap between revenue and costs.

- In neoclassical economics, the theory of the firm is a microeconomic concept that states that a firm exists and make decisions to maximize profits.
- The theory of the firm influences decision-making in a variety of areas, including resource allocation, production techniques, pricing adjustments, and the volume of production.
- The theory of the firm sometimes distinguishes between long-run motivations, such as sustainability, and short-run motivations, such as profit maximization.

UNIT-III

(Demand and Supply Analysis)

Q.1. What is Demand? Explain the determinants of Demand.

Ans. Demand for a commodity refers to the quantity of the commodity which an individual consumer or a household is willing to purchase per unit of time at a particular price. Demand for a commodity implies- (a) Desire of the consumer to buy the product, (b) His willingness to buy the product, and (c) Sufficient purchasing power in his possession to buy the product. The demand may arise from an individual, a household as well as a market.

DETERMINANTS OF DEMAND:

- PRICE OF THE COMMODITY
- INCOME OF THE CONSUMER
- PRICES OF RELATED GOODS
- TASTE AND PREFERENCES
- ADVERTISEMENT
- EXPECTATIONS

Q.2. What are the different types of Demand? Explain.

Ans. TYPES OF DEMAND:

1. **Direct and indirect demand: (or) Producers‘ goods and consumers’goods:** Demand for goods that are directly used for consumption by the ultimate consumer is known as direct demand (example: Demand for T-shirts). On the other hand demand for goods that are used by producers for producing goods and services. (Example: Demand for cotton by a textile mill)

2. **Derived demand and autonomous demand:** When a produce derives its usage from the use of some primary product it is known as derived demand. (Example: demand for tyres derived from demand for car) Autonomous demand is the demand for a product that can be independently used. (Example: demand for a washing machine).

3. **Durable and non durable goods demand:** Durable goods are those that can be used more than once, over a period of time (example: Microwave oven) Non durable goods can be used only once (example: Band-aid)

4. **Firm and industry demand:** Firm demand is the demand for the product of a particular firm. (Example: Dove soap) The demand for the product of a particular industry is industry demand (example: demand for steel in India).

5. **Total market and market segment demand:** A particular segment of the markets demand is called as segment demand (example: demand for laptops by engineering students) the sum total of the demand for laptops by various segments in India is the total market demand. (Example: demand for laptops in India)

6. **Short run and long run demand:** Short run demand refers to demand with its immediate reaction to price changes and income fluctuations. Long run demand is that which will ultimately exist as a result of the changes in pricing, promotion or product improvement after market adjustment with sufficient time.

7. **Joint demand and Composite demand:** When two goods are demanded in conjunction with one another at the same time to satisfy a single want; it is called as joint or complementary demand. (Example: demand for petrol and two wheelers) A composite demand is one in which a good is wanted for several different uses. (Example: demand for iron rods for various purposes)

8. **Price demand, income demand and cross demand:** Demand for commodities by the consumers at alternative prices is called as price demand. Quantity demanded by the consumers at alternative levels of income is income demand. Cross demand refers to the quantity demanded of commodity X'at a price of a related commodity Y' which may be a substitute or complementary to X.

9. **Market Demand:** The total quantity of a good or service that people are willing and able to buy at prevailing prices in a given time period. It is the sum of individual demands.

Q.3. What do you understand by Law of Demand?

Ans. The law of demand is a fundamental principle which states that there is an inverse relationship between price and quantity demanded. In other words, "conditional on all else being equal, as the price of a good increases (↑), quantity demanded will decrease (↓); conversely, as the price of a good decreases (↓), quantity demanded will increase**.**

Q.4. What is the concept of Elasticity of Demand? Name different types of Elasticity.

Ans. ELASTICITY OF DEMAND: Elasticity of Demand (E_d) is defined as the percentage change in quantity demanded caused by one percent change in demand determinant under consideration, while other determinants are held constant. It explains the degree of responsiveness of quantity demanded of the goods with respect to the changes in prices of the goods The general equation for the measurement of elasticity of demand is:

Elasticity of demand = (Percentage change in quantity demanded of goods /Percentage change in determinant)

We generally have 3 types of elasticity of demand:

1. Price elasticity of demand

2. Income elasticity of demand

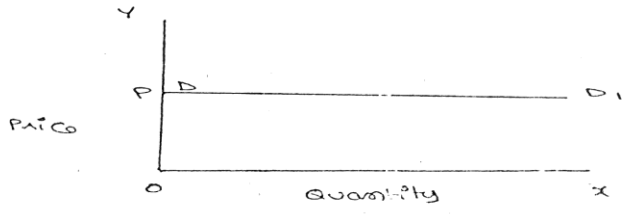
3. Cross elasticity of demand

Q.5. Explain the concept of Price elasticity of demand and also its types.

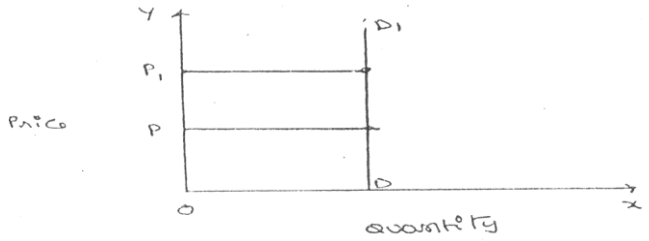
Ans.1. Price elasticity of demand: Marshall was the first economist to define price elasticity of demand. Price elasticity of demand measures changes in quantity demand to a change in Price. It is the ratio of percentage change in quantity demanded to a percentage change in price.

There are five cases of price elasticity of demand

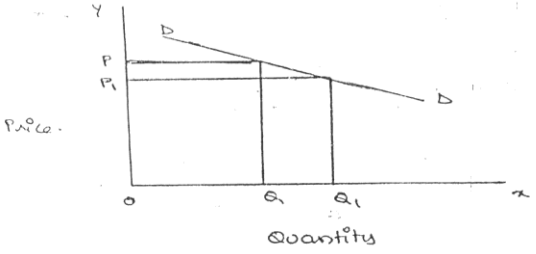
A. **Perfectly elastic demand:** When small change in price leads to an infinitely large change is quantity demand, it is called perfectly or infinitely elastic demand. In this case E=∞



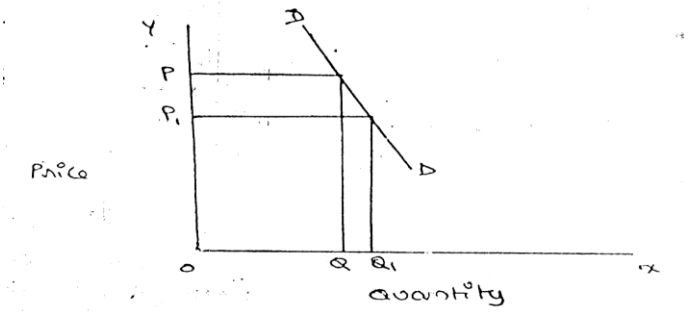
B. **Perfectly Inelastic Demand** In this case, even a large change in price fails to bring about a change in quantity demanded. E=0



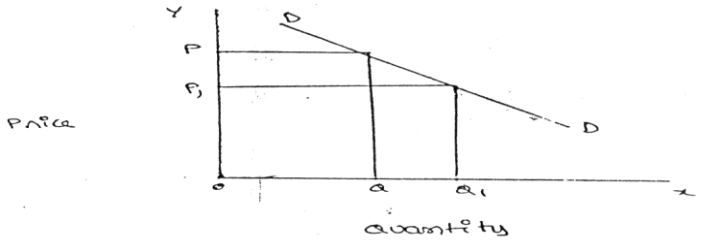
C. **Relatively elastic demand:** Demand changes more than proportionately to a change in price. i.e. a small change in price loads to a very big change in the quantity demanded. In this case E > 1. This demand curve will be flatter.



D. **Relatively in-elastic demand:** Quantity demanded changes less than proportional to a change in price. A large change in price leads to small change in amount demanded. Here E < 1.



E. **Unit elasticity of demand:** The change in demand is exactly equal to the change in price. When both are equal E=1 and elasticity is said to be unitary.



2. **INCOME ELASTICITY OF DEMAND:** Income elasticity of demand shows the change in quantity demanded as a result of a change in income. Income elasticity of demand may be stated in the form of a formula:

$$E_i = \frac{\%\ \text{Change in Quantity Demanded}}{\%\ \text{Change in Income}}$$

Symbollically:

$$E_i = \frac{\frac{\Delta q}{q} x100}{\frac{\Delta y}{y} x100}\ ,$$

Where, Ei => Income Elasticity

q => Quantity

y => Income

Δ => A very small change

3. **CROSS ELASTICITY OF DEMAND:** A change in the price of one commodity leads to a change in the quantity demanded of another commodity. This is called a cross elasticity of demand.

a. In case of substitutes, cross elasticity of demand is positive. Eg: Coffee and Tea.

b. In case of compliments, cross elasticity is negative.

c. In case of unrelated commodities, cross elasticity of demanded is zero.

Q.6. What are the measurement techniques of elasticity of demand? Explain.

Ans. There are three techniques of measurement of Elasticity of demand which are as follows:

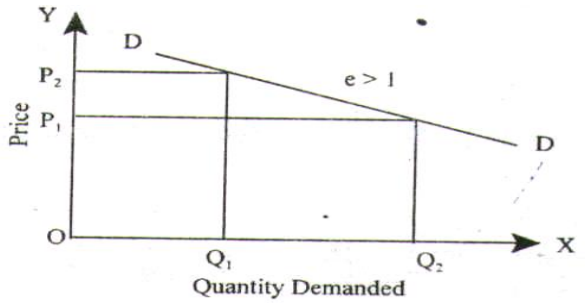
a) Total Expenditure Method
b) Point Elasticity Method
c) Arc Elasticity Method

a) Total Expenditure Method: Under this the elasticity of demand can be measured by considering the changes in price and the subsequent change in the total quantity of goods purchased and the total amount of money spent on it. This method gives only the nature of elasticity and not the exact numerical value.

Degree of prices elasticity of demand according to this method as follows :
(i) **Elastic Demand:** The demand for a commodity is elastic when the total expenditure on it increases with a fall in price. eg.

Price (p)	**Quantity (q)**	**Total Expenditure (p x q)**
Rs. 10/kg	2kg	Rs.20
Rs. 5/kg	5kg	Rs.25

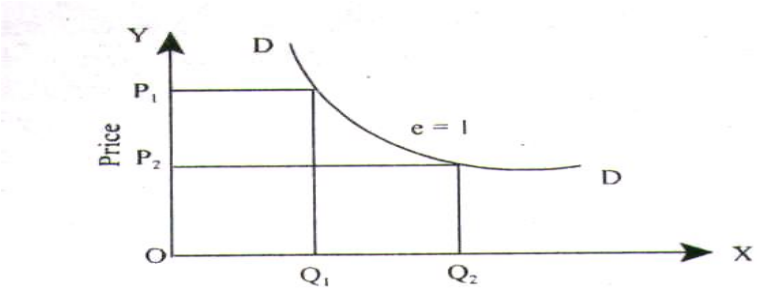
In other words elasticity of demand in this case is greater than unity.
Diagrammatically :-



(ii) Unitary Elastic Demand : here, with a fall in price the total outlay of the consumers on that commodity remains the same, though he purchase more in terms of units. Elasticity in this case equals to one.

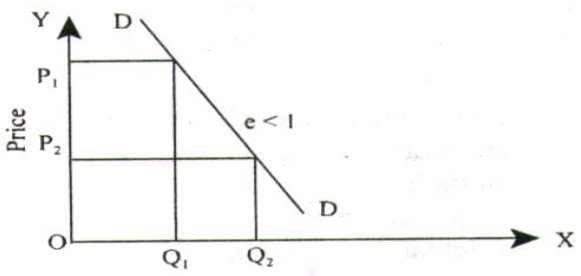
Price (p)	Quantity (q)	Total Expenditure (p x q)
Rs. 10/kg	2kg	Rs.20
Rs. 5/kg	4kg	Rs. 20

Graphically :-



(iii) Inelastic demand: A commodity will have inelastic demand when with a fall in its price the total expenditure on it also falls. Here, the elasticity is less than unity. e.g.

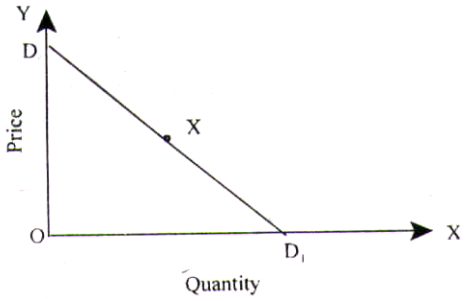
Price (p)	Quantity (q)	Total Expenditure (p x q)
Rs. 10/kg	3kg	Rs.30
Rs. 4/kg	5kg	Rs.20



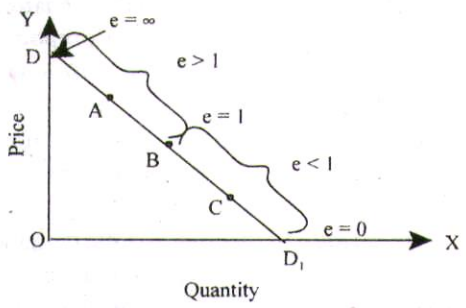
b) **Point Elasticity Method:** In this method we measure elasticity at a given point on the demand curve. Here we make use of derivatives rather than finite changes in price and quantity. Point elasticity can also be calculated as :-

$$\frac{\text{Lower segment on the demand curve below the point}}{\text{Upper Segment on the demand curve above the point}}$$

The elasticity of demand at point x on the demand curve DD1 is $\frac{XD^1}{XD}$.



Again, elasticity of demand is different at various points on the demand curve. This may be graphically shown as :-



Thus we can see that as we move from point D1 to D2 the elasticity goes on increasing. At the mid-point it is equal to one at D it is infinity and at D1. it is zero.

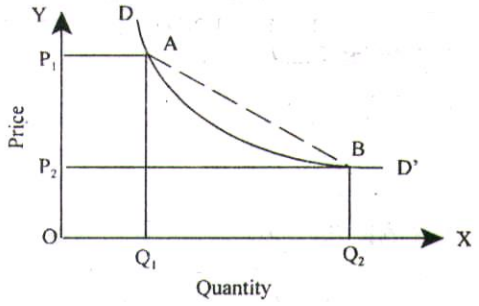
Arc Elasticity : It is a measure of the average responsiveness to price change exhibited by a demand curve over some finite stretch of the curve.

$$E_d = \frac{\dfrac{\text{Change in Quantity Demand}}{\text{Original Quantity plus Quantity after Change}}}{\dfrac{\text{Change in Price Demand}}{\text{Original Price plus Price after Change}}}$$

In notation form it can be expressed as :-

$$E_d = \frac{\frac{\Delta q}{q_1 + q_2}}{\frac{\Delta p}{p_1 + p_2}} = \frac{\Delta q}{\Delta p} x \frac{p_1 + p_2}{q_1 + q_2}$$

Δq => Change in quantity
Δp => Change in price
q_1 => Original quantity
q_2 => New quantity
p_1 => Original price
p_2 => New price



Q.7.How is elasticity of demand significant for managerial decision making?

Ans. (i) Helpful in Price Determination: The concept of elasticity helps a monopolist in fixing prices for his product. He will fix a higher price in those markets where there is inelastic demand for his product. Conversely, he will fix a lower price for the same product in some other segments of the market where there is elastic demand for that particular product. In this way he can discriminate the price to maximize his profit.

(ii) **Useful for Government :** Government fixes a higher tax rates in case of goods having inelastic demand and a lower tax rate for good having elastic demand.

(iii) **Useful in International Trade :** It helps to calculate the terms of trade and the consequent gain from foreign trade. If the demand for home product is inelastic, terms of trade will be profitable to the home country.

(iv) **Helpful in Forecasting Demand :** It is possible to forecast the demand for a particular commodity by analyzing its states of elasticity.

(v) **Elasticity of Demand :** Elasticity of demand also helps in taking decision regarding devaluing or revaluing a country in terms of foreign currency.

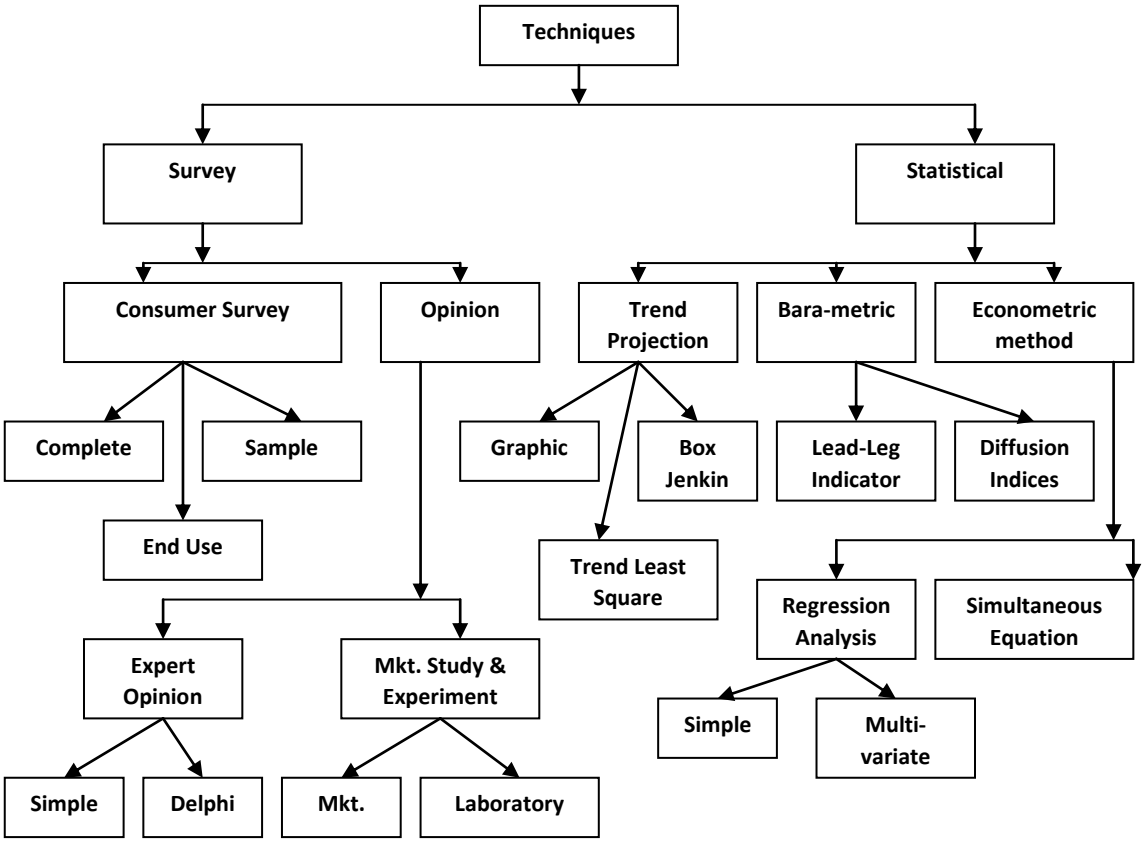
Q.8.What is demand forecasting? Explain some Qualitative and Quantitative methods of demand forecasting.

Ans. Demand forecasting involves techniques including both informal methods, such as educated guesses, and quantitative methods, such as the use of historical sales data or current data from test markets. Demand forecasting may be used in making pricing decisions, in assessing future capacity requirements, or in making decisions on whether to enter a new market.

In the words of Prof. Philip Kotler, “The company (sales) forecast is the expected level of company sales based on a chosen marketing plan and assumed marketing environment."

DEMAND FORECASTING TECHNIQUES:

There are various techniques of demand forecasting which come under two major categories like qualitative and quantitative. The techniques are as follows:



Qualitative Techniques:

Opinion polling method:

a) **Collective opinion Survey:** Sales personnel are closest to the customers and have an intimate feel of the market. Thus they are most suited to assess consumers' reaction to company's products. Here each salesperson makes an estimate of the expected sales in their area, territory, state and/or region. These estimates are collated, reviewed and revised. Taking in to account product design, features and price is decided and made. Thus, "collective opinion survey forms the basis of market Analysis and demand forecasting.

b) **Survey of Customers Intention:** Another method of demand forecasting is to carry out a survey of what consumers prefer and intend to buy. If the product is sold to a few large industrial buyers, survey would involve interviewing them.

c) **Delphi Method:** The Delphi technique was developed at RAND Corporation in the 1950s. Delphi method is a group (members) process and aims at achieving a `single opinion of the members on the subject. Herein experts in the field of marketing research and demand forecasting are engaged in:

- Analyzing economic conditions
- Carrying out sample surveys of market
- Conducting opinion polls

d) **Nominal Group Technique:** This technique was originally developed by Delbecq and VandeVen. This is a further modification of Delphi method of forecasting. A panel of 3-4 groups of up to 10 experts are formed and allowed to interact, discuss 'and rank all the suggestions in descending (highest to lowest) order as per the following procedure:

Experts sit around a table in full view of one another and are asked to speak to each other. An administrator hand over copies of questionnaire needing a forecast and each expert is expected to write down a list of ideas about the questions. After everyone has written down their ideas, administrator asks each expert to share one idea, out of own list. The idea shared is written on the `flip chart' which everyone can see. Experts give ideas in rotation until all of them are written on the `flip chart'. No discussion takes place in this phase and usually 15 to 25 ideas emerge from this format.

In the next phase, experts discuss ideas presented by them. Administrator ensures that all ideas have been adequately discussed. During discussions similar ideas are combined. This reduces the number of ideas. After completing group discussions, experts are asked to give in writing ranks to ideas according to their perception of priority.

Quantitative Methods:

Statistical methods:

- **Trend projection method:** This technique assumes that whatever past years demand pattern will be continued in the future also. Basing on the historical data that means previous year's data is used to predict the demand for the future. In this trend projection method, previous year's data is presented on the graph and future demand is estimated.
- **REGRESSION ANALYSIS:** Past data is used to establish a functional relationship between two variables. For Example, demand for consumer goods has a relationship with income of Individuals and family; demand for tractors is linked to the agriculture income and demand for cement, bricks etc. are dependent upon value of construction contracts at any time. Forecasters collect data and build relationship through co-relation and regression analysis of variables.

Q.9. Explain the need of demand forecasting and also the steps involved in it.

Ans. Need for demand forecasting can be understood as follows:

1. Demand forecasting plays an important role to know the profit /loss on sales. 2. It serves as a root map for production plans. 3. The outcomes of demand forecasting facilitate managers to line up their business activities. 4. Demand forecasting is helpful not only at firm level but also at the national level. 5. It situation of competition, it can helps managers to take decisions regarding inputs of production process such as labour and capital etc.
   Steps involved in demand forecasting:
   1. Identification of object
   2. Determining the nature of goods under consideration
   3. Selecting a proper method of forecasting
   4. Interpretation of results.

Q.10. What is Supply? What are its determinants?

Ans. Supply of a product refers to the various amounts which are offered for sale at a particular price during a given period of time.

Determinants of Supply:

- There are some important factors which are known as determinants of supply:
- Natural factors
- Change in techniques of production
- Cost of production
- Prices of related goods
- Government policy
- Monopoly power
- Number of sellers of firms
- Complementary goods
- Discovery of new sources of inputs
- Improvements in transport and communication
- Future rise in prices

Q.11. What is the Law of Supply?

It states that "Other things remain constant, the quantity supplied varies directly with the price i.e. when the price falls, supply will contract and when price rises, supply will extend."

Note: The other things which should remain constant for the law to operate are:

- Number of firms, the scale of production and the speed of production.
- Availability of other inputs.
- Techniques of production.
- Cost of production.
- Market prices of other related goods.
- Climate and weather conditions.

Q.12. What is Elasticity of Supply?

Ans. The elasticity of supply establishes a quantitative relationship between the supply of a commodity and its price. Hence, we can express the numeral change in supply with the change in the price of a commodity using the concept of elasticity. Note that elasticity can also be calculated with respect to the other determinants of supply.

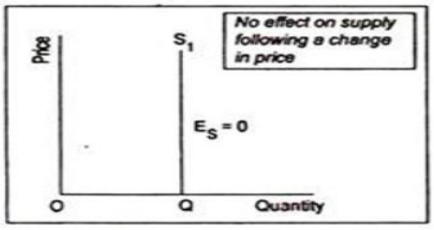
However, the major factor controlling the supply of a commodity is its price. Therefore, we generally talk about the price elasticity of supply. The price elasticity of supply is the ratio of the percentage change in the price to the percentage change in quantity supplied of a commodity.

$$\mathbf{Es= [(\Delta q/q)\times 100] \div [(\Delta p/p)\times 100] = (\Delta q/q) \div (\Delta p/p)}$$

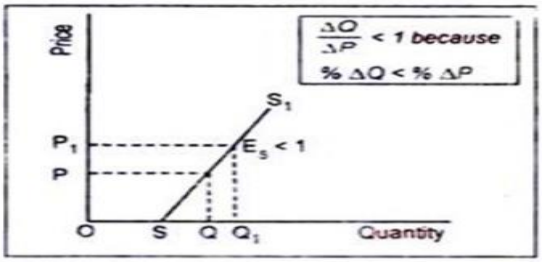
Δq= The change in quantity supplied
q= The quantity supplied
Δp= The change in price
p= The price

Q.13. What are the types of Elasticity of Supply? Explain.

Ans. 1. **Perfectly Inelastic Supply:** A service or commodity has a perfectly inelastic supply if a given quantity of it can be supplied whatever might be the price. The elasticity of supply for such a service or commodity is zero. A perfectly inelastic supply curve is a straight line parallel to the Y-axis. This is representative of the fact that the supply remains the same irrespective of the price.

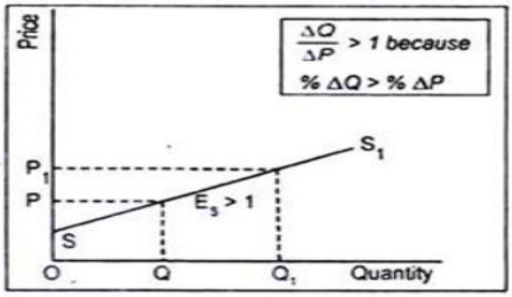


2. **Relatively Less-Elastic Supply:** When the change in supply is relatively less when compared to the change in price, we say that the commodity has a relatively-less elastic supply. In such a case, the price elasticity of supply assumes a value less than 1.

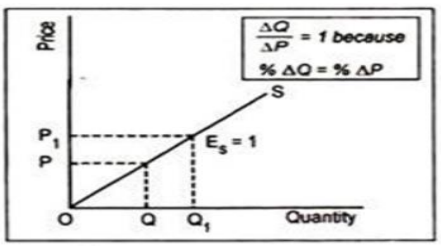


3. Relatively Greater-Elastic Supply:

When the change in supply is relatively more when compared to the change in price, we say that the commodity has a relatively greater-elastic supply. In such a case, the price elasticity of supply assumes a value greater than 1.

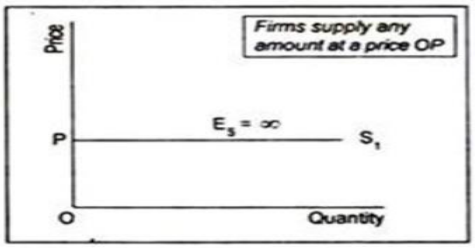


4. **Unitary Elastic:** For a commodity with a unit elasticity of supply, the change in quantity supplied of a commodity is exactly equal to the change in its price. In other words, the change in both price and supply of the commodity are proportionately equal to each other. To point out, the elasticity of supply in such a case is equal to one. Further, a unitary elastic supply curve passes through the origin.



5. **Perfectly Elastic supply:** A commodity with a perfectly elastic supply has an infinite elasticity. In such a case the supply becomes zero with even a slight fall in the price and becomes infinite with a slight rise in price. This is indicative of the fact that the suppliers of

such a commodity are willing to supply any quantity of the commodity at a higher price. A perfectly elastic supply curve is a straight line parallel to the X-axis.



Q.14. Why is the elasticity of supply always a positive number?

Ans: The positive nature indicates that there is a direct relationship between the supply of a commodity or service and its price.

(Unit –IV)

(Cost Analysis and Pricing Approach)

Q.1. What do you understand by cost? Explain different types of cost.

Ans. Cost refers to money spent on something or money that you pay for something.

A managerial economist must have a clear understanding of the different cost concepts for clear business thinking and proper application. The several alternative bases of classifying cost and the relevance of each for different kinds of problems are to be studied. The various relevant concepts of cost are:

1. Opportunity costs and outlay costs: Out lay cost also known as actual costs obsolete costs are those expends which are actually incurred by the firm these are the payments made for labour, material, plant, building, machinery travelling, transporting etc., These are all those expense item appearing in the books of account, hence based on accounting cost concept. On the other hand opportunity cost implies the earnings foregone on the next best alternative, has the present option is undertaken. This cost is often measured by assessing the alternative, which has to be scarified if the particular line is followed. The opportunity cost concept is made use for long-run decisions. This concept is very important in capital expenditure budgeting. This concept is very important in capital expenditure budgeting. The concept is also useful for taking short-run decisions opportunity cost is the cost concept to use when the supply of inputs is strictly limited and when there is an alternative. If there is no alternative, Opportunity cost is zero. The opportunity cost of any action is therefore measured by the value of the most favorable alternative course, which had to be foregoing if that action is taken.

2. Explicit and implicit costs: Explicit costs are those expenses that involve cash payments. These are the actual or business costs that appear in the books of accounts. These costs include payment of wages and salaries, payment for raw materials, interest on borrowed capital funds, rent on hired land, Taxes paid etc.

Implicit costs are the costs of the factor units that are owned by the employer himself. These costs are not actually incurred but would have been incurred in the absence of employment of self – owned factors. The two normal implicit costs are depreciation, interest on capital etc. A decision maker must consider implicit costs too to find out appropriate profitability of alternatives.

3. Historical and Replacement costs: Historical cost is the original cost of an asset. Historical cost valuation shows the cost of an asset as the original price paid for the asset acquired in the past. Historical valuation is the basis for financial accounts. A replacement cost is the price that would have to be paid currently to replace the same asset. During periods of substantial change in the price level, historical valuation gives a poor projection of the future cost intended for managerial decision. A replacement cost is a relevant cost concept when financial statements have to be adjusted for inflation.

4. Short – run and long – run costs: Short-run is a period during which the physical capacity of the firm remains fixed. Any increase in output during this period is possible only by using the existing physical capacity more extensively. So short run cost is that which varies with output when the plant and capital equipment in constant. Long run costs are those, which vary with output when all inputs are variable including plant and capital equipment. Long-run cost analysis helps to take investment decisions.

5. Out-of pocket and books costs: Out-of pocket costs also known as explicit costs are those costs that involve current cash payment. Book costs also called implicit costs do not require current cash payments. Depreciation, unpaid interest, salary of the owner is examples of back costs. But the book costs are taken into account in determining the level dividend payable during a period. Both book costs and out-of-pocket costs are considered for all decisions. Book cost is the cost of self-owned factors of production.

6. Fixed and variable costs: Fixed cost is that cost which remains constant for a certain level to output. It is not affected by the changes in the volume of production. But fixed cost per unit decrease, when the production is increased. Fixed cost includes salaries, Rent, Administrative expenses depreciations etc. Variable is that which varies directly with the variation is output. An increase in total output results in an increase in total variable costs and decrease in total output results in a proportionate decline in the total variables costs. The variable cost per unit will be constant. Ex: Raw materials, labour, direct expenses, etc.

7. Avoidable and unavoidable costs: Avoidable costs are the costs, which can be reduced if the business activities of a concern are curtailed. For example, if some workers can be retrenched with a drop in a product – line, or volume or production the wages of the retrenched workers are escapable costs. The unavoidable costs are otherwise called sunk costs. There will not be any reduction in this cost even if reduction in business activity is made. For example cost of the ideal machine capacity is unavoidable cost.

8. Controllable and uncontrollable costs: Controllable costs are ones, which can be regulated by the executive who is in charge of it. The concept of controllability of cost varies with levels of management. Direct expenses like material, labour etc. are controllable costs. Some costs are not directly identifiable with a process of product. They are appointed to various processes or products in some proportion. This cost varies with the variation in the basis of allocation and is independent of the actions of the executive of that department. These apportioned costs are called uncontrollable costs.

9. Incremental and sunk costs: Incremental cost also known as different cost is the additional cost due to a change in the level or nature of business activity. The change may be caused by adding a new product, adding new machinery, replacing a machine by a better one etc. Sunk costs are those which are not altered by any change – They are the costs incurred in the past. This cost is the result of past decision, and cannot be changed by future decisions. Investments in fixed assets are examples of sunk costs.

10. Total, average and marginal costs: Total cost is the total cash payment made for the input needed for production. It may be explicit or implicit. It is the sum total of the fixed and variable costs. Average cost is the cost per unit of output. If is obtained by dividing the total cost (TC) by the total quantity produced (Q)

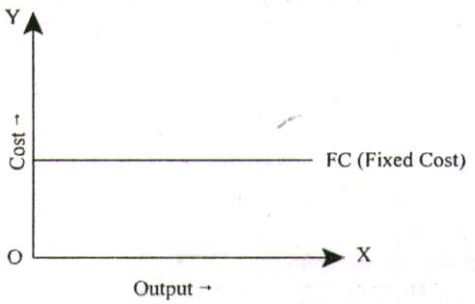
Average cost = TC /Q

Marginal cost is the additional cost incurred to produce and additional unit of output or it is the cost of the marginal unit produced.

Q.2. What are the determinants of Short-run cost? Explain.

Ans. The determinants of short-run cost are as follows:

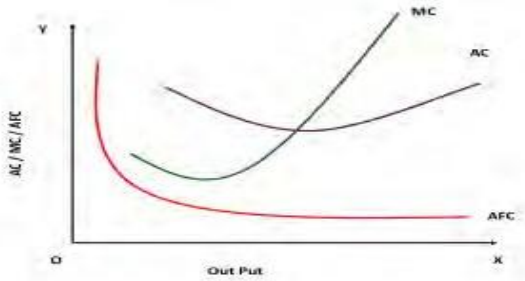
Fixed Cost: The much we produce the goods, fixed cost will not change, it will be constant (not change). If we close the production also fixed cost must be faced by the firm. eg: (Rent, salaries, Interest on capital) these are to paid by the firm, if there is production are not.



Average fixed cost: Fixed cost spends towards single unit of output or production is called Average fixed cost. Total fixed cost (Rent)

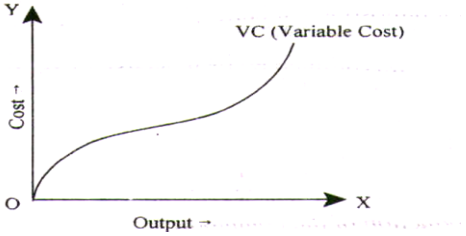
TFC = 1000/- No. of units produced

TQ = 1000.



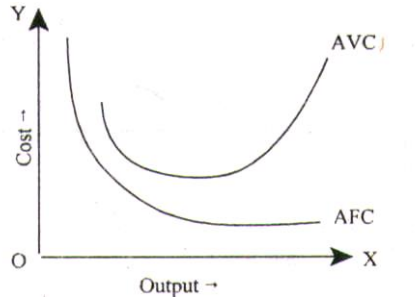
The more he produces, per unit cost will be decreased {per unit cost of fixed cost is average fixed cost}

Variable Cost: The cost which rises with increase in production and decreases with fall in production is called variable cost. Variable cost incur for total goods produced is called total variable cost. Eg: Raw materials, power, fuel and labour. The more the firm produces the goods the firm should incur more.



Average variable Cost:

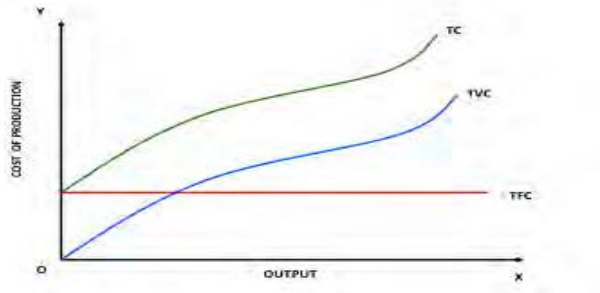
Variable cost spent on single unit on goods is called Average variable Cost. By dividing the total variable cost with number of units of production we get Average Variable Cost.



Per unit variable cost on production is called Average Variable Cost

Total Cost:

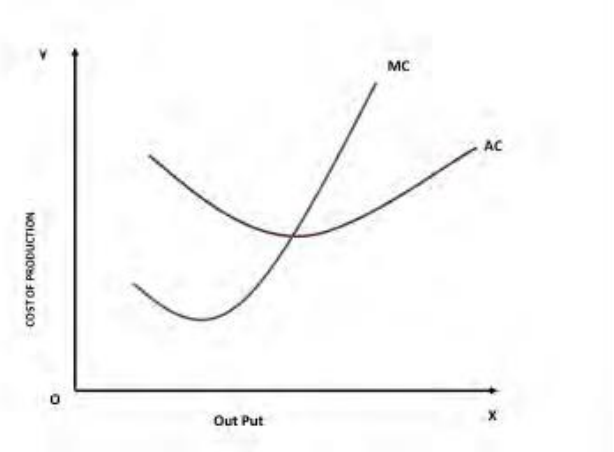
Total cost includes {Total Cost = total fixed cost + Total Variable cost}



Average total cost: (ATC) {Per Unit total cost of production is called Average total cost.

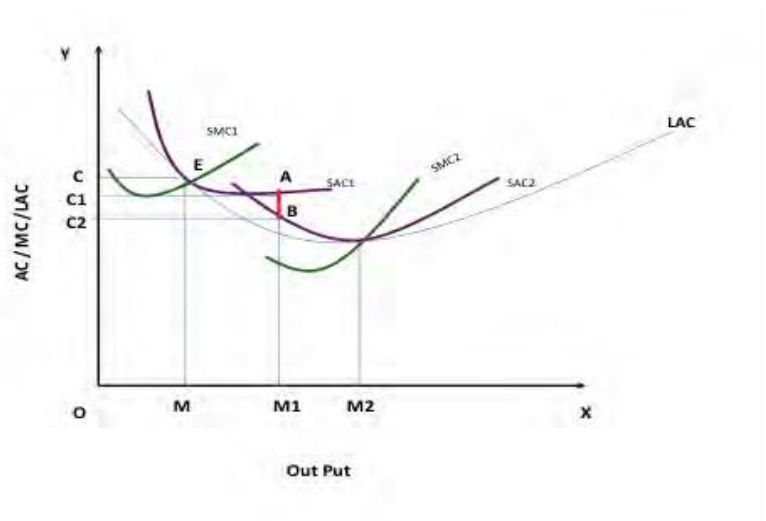
Marginal Cost (MC):

Marginal Cost is the additional cost incurred by producing one more unit extra.



Q.3. What do you understand by Cost-output Relationship in the Long-Run? Explain.

In the long run costs fall as output increases due to economies of scale, consequently the average cost AC of production falls. Some firms experience diseconomies of scale if the average cost begins to increase. This fall and rise derives a U shaped or boat shaped average cost curve in the long run which is denoted as LAC. The minimum point of the curve is said to be the optimum output in the long run. It is explained graphically in the chart given below.



Graph – Long Run Average Cost Curve

In the long run all factors are variable and the average cost may fall or increase to A, B respectively but all these costs are above the long run cost average cost. LAC is the lower envelope of all the short run average cost curves because it contains them all. At point 'E' the SAC1 and SMC1 intersects each other, in case the organization increases its output from OM to OM1 they have to spend OC1 amount. In case the organization purchases one more machine (increase in fixed cost) then they will get a new set of cost curves SAC2, and SMC2. But the new average cost curve reduces the cost of production from OC1 to OC2.That means they can save the difference of C1C2 which is nothing but AB. Therefore in the long run due to business expansion a firm can reduce their cost of production. During their business life they will meet many combinations of optimum production and minimum cost in different short periods. In the long run due to law of diminishing returns the long run average cost curve LAC also slopes like boat shape.

Q.4. Explain the concept of Economies and Diseconomies of scale.

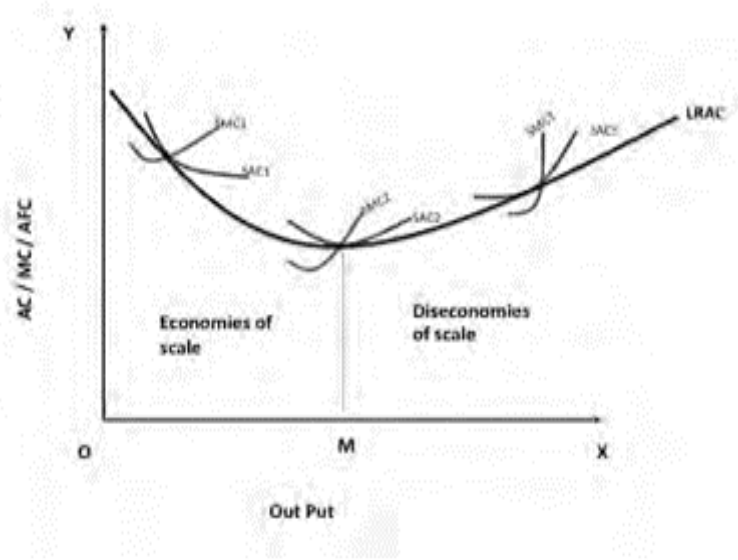
Ans. Economies of Scale: Economies of scale exist when long run average costs decline as output is increased. Diseconomies of scale exist when long run average cost rises as output is increased. It is graphically presented in the following graph. The economies of scale occur because of (i) technical economies: the change in production process due to technology adoption. (ii) Managerial economies (iii) purchasing economies, (iv) marketing economies and (v) financial economies.

Economies of scale means a fall in average cost of production due to growth in the size of the industry within which a firm operates.

Diseconomies Of Scale:

Arises due to managerial problems. If the size of the business becomes too large, then it becomes difficult for management to control the organizational activities therefore diseconomies of scale arise.

Graph – Economies of Scale and Diseconomies of scale



Q.5. What is Product Lifecycle Pricing? Explain its advantages.

Ans. Product life cycle pricing is a strategy for selling products in which pricing correlates with a product's location in its life cycle. There are four phases within the life cycle, including launch, growth, maturity and declination. Businesses use product life cycle pricing to better understand how discounts, clearance prices, new versions and marketing can affect their sales in each phase. A company may choose to strategize differently depending on the market and how its product sells.

Advantages:

- **Strategies** – The number 1 benefit of Product life cycle is that it can help you to define the strategies which can be used based on the life cycle stage. So if a product is in growth stage, then naturally a lot of advertising and investments are needed to keep the product in the growth stage. Thus, strategizing becomes easier with the Product life cycle.

- **Decision making** – Whenever you are presented with multiple options, you need more data to take a decision on which direction to move in. Product life cycle helps managers with such decision making because it has the sales data as well performance over time data. The combination of these 2 can help managers take decisions faster.

- **Forecasting sales becomes easier** – With enough experience, it is easier to forecast how a product will move through the product life cycle and therefore, what levels of sales will it achieve.
- **Competitive advantage** – A marketing manager can also run the product life cycle of competitors products besides running their own (provided they have the sales data). This gives a good insight into the preparations the competitors must be going through. Accordingly, the firm doing this analysis has a competitive advantage as it can take one step ahead of the competitor.
- **Saying Goodbye** – It's always hard to say goodbye especially to a product you launched with so many hopes. However, the product life cycle is the perfect measure of when to say goodbye to a product and it can help marketing managers with the decision to eliminate a product from their portfolio when the sales has declined far below the market average. Such products will demand investments but the returns will be very poor.

Q6. What do you understand by Pricing Strategies? Explain those.

A pricing strategy is an approach taken by businesses to decide how much to charge for their goods and services. The interaction between margin, price, and selling level is given specific consideration while pricing products. Therefore, it is important and complicated to design a proper pricing plan that ensures business success.

Different Pricing Strategies-

1. **Price skimming:**
   If you set your prices as high as the market will possibly tolerate and then lower them over time, you will be using the price skimming strategy. The goal is to skim the top off the market and the lower prices to reach everyone else. With the right product it can work, but you should be very cautious using it.
2. **Penetration pricing:**
   In highly competitive markets, it can be hard for new companies to get a foothold. One way some companies attempt to push new products is by offering prices that are much lower than the competition. This is penetration pricing. While it may get you customers and decent sales volume, you'll need a lot of them and you'll need them to be very loyal to stick around when the price increases in the future.
3. **Promotional pricing:**
   Promotional pricing is a sales strategy in which brands temporarily reduce the price of a product or service to attract prospects and customers. By lowering the price for a short time, a brand artificially increases the value of a product or service by creating a sense of scarcity.
4. **Differential pricing:**
   Differential pricing is a two-price system that focuses on segmented price management, allowing your company to charge different prices for the same product. The purpose is to streamline your business operations and increase revenues based on customers' demands for the product.
5. **Full cost plus pricing**
   Full cost plus pricing is a price-setting method under which you add together the direct material cost, direct labour cost, selling and administrative costs, and overhead costs for a product, and add to it a markup percentage (to create a profit margin) in order to derive the price of the product.
6. **Product line pricing**
   Product line pricing involves the separation of goods and services into cost categories to create various perceived quality levels in the minds of consumers. You might also hear product line pricing referred to as price lining, but they refer to the same practice.

Unit-5

Production and Utility analysis

Q.1. Define production function. Explain its importance and assumptions.

Ans. The production function expresses a functional relationship between physical inputs and physical outputs of a firm at any particular time period. The output is thus a function of inputs. Mathematically production function can be written as

Q= f (A, B, C, D)

Where ―Q stands for the quantity of output and A, B, C, D are various input factors such as land, labour, capital and organization. Here output is the function of inputs. Hence output becomes the dependent variable and inputs are the independent variables.

The above function does not state by how much the output of ―Q changes as a consequence of change of variable inputs. In order to express the quantitative relationship between inputs and output,

Production function has been expressed in a precise mathematical equation i.e.

Y= a+b(x)

Which shows that there is a constant relationship between applications of input (the only factor input _X' in this case) and the amount of output (y) produced.

Importance:

1. When inputs are specified in physical units, production function helps to estimate the level of production.

2. It becomes is equates when different combinations of inputs yield the same level of output.

3. It indicates the manner in which the firm can substitute on input for another without altering the total output.

4. When price is taken into consideration, the production function helps to select the least combination of inputs for the desired output.

5. It considers two types' input-output relationships namely _law of variable proportions' and _law of returns to scale'. Law of variable propositions explains the pattern of output in the short-run as the units of variable inputs are increased to increase the output. On the other hand law of returns to scale explains the pattern of output in the long run as all the units of inputs are increased.

6. The production function explains the maximum quantity of output, which can be produced, from any chosen quantities of various inputs or the minimum quantities of various inputs that are required to produce a given quantity of output.

Assumptions:

Production function has the following assumptions.
1. The production function is related to a particular period of time.
2. There is no change in technology.
3. The producer is using the best techniques available.
4. The factors of production are divisible.
5. Production function can be fitted to a short run or to long run.

Q.2. What is Cobb Douglas production function? Explain.

Ans. Cobb Douglas Production Function:

This is a function that defines the maximum amount of output that can be produced with a given level of inputs. Let us assume that all input factors of production can be grouped into two categories such as labour (L) and capital (K).The general equilibrium for the production function is Q = f (K, L)

There are various functional forms available to describe production. In general Cobb-Douglas production function (Quadratic equation) is widely used

$Q = A K^{\alpha} L^{\beta}$

Q = The maximum rate of output for a given rate of capital (K) and labour (L).

Short Run Production Function:

In the short run, some inputs (land, capital) are fixed in quantity. The output depends on how much of other variable inputs are used. For example if we change the variable input namely (labour) the production function shows how much output changes when more labour is used. In the short run producers are faced with the problem that some input factors are fixed. The firms can make the workers work for longer hours and also can buy more raw materials. In that case, labour and raw material are considered as variable input factors. But the number of machines and the size of the building are fixed. Therefore it has its own constraints in producing more goods.

In the long run all input factors are variable. The producer can appoint more workers, purchase more machines and use more raw materials. Initially output per worker will increase up to an extent. This is known as the **Law of Diminishing Returns** or the **Law of Variable Proportion.** To understand the law of diminishing returns it is essential to know the basic concepts of production.

Q.3. What do you understand by Laws of returns to scale? Explain.

Ans. The Law Of ReturnsTo Scale

In the long run the fixed inputs like machinery, building and other factors will change along with the variable factors like labour, raw material etc. With the equal percentage of increase in input factors various combinations of returns occur in an organization.

Returns to scale: the change in percentage output resulting from a percentage change in all the factors of production. They are increasing, constant and diminishing returns to scale.

Increasing returns to scale may arise: if the output of a firm increases more than in proportionate to an increase in all inputs. For example the input factors are increased by 50% but the output has doubled (100%).

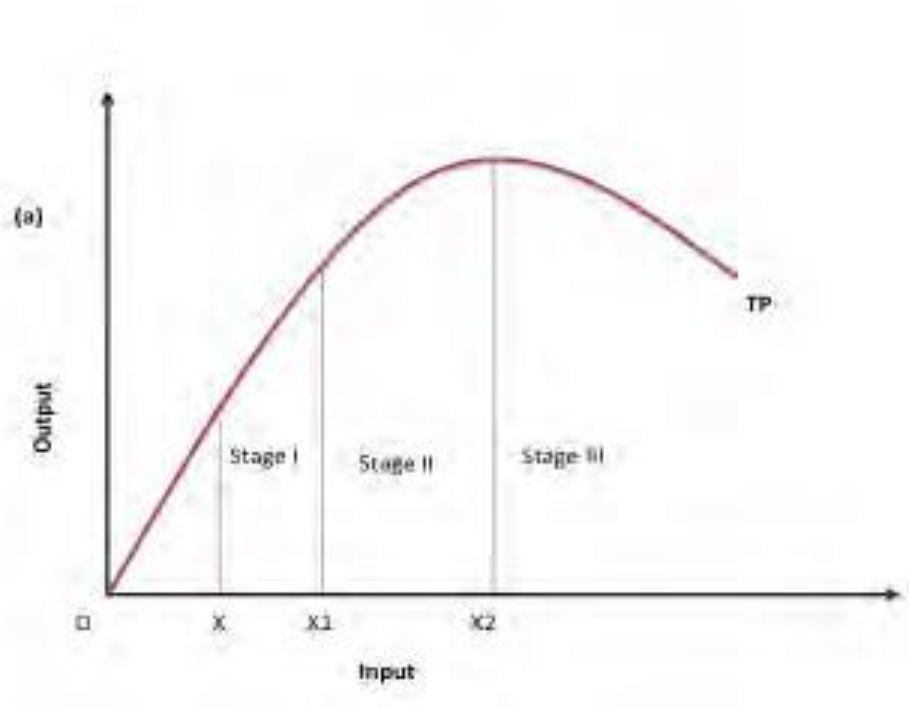
Constant returns to scale: when all inputs are increased by a certain percentage the output increases by the same percentage. For example input factors are increased by 50% then the output has also increased by 50 percentages. Let us assume that a laptop consists of 50 components we call it as a set. In case the firm purchases 100 sets they can assemble 100 laptops but it is not possible to produce more than 100 units.

Diminishing returns to scale: when output increases in a smaller proportion than the increase in inputs it is known as diminishing return to scale. For example 50% increment in input factors lead to only 20% increment in the output.

From the graph given below we can see the total production (TP) curve and the marginal production curve (MP) and average production curve (AP). It is classified into three stages; let us understand the stages in terms of returns to scale.

Stage I: The total production increased at an increasing rate. We refer to this as increasing stage where the total poduct, marginal product and average production are increasing.

Stage II: The total production continues to increase but at a diminishing rate until it reaches the next stage. Marginal product, average product are declining but are positive. The total production is at the maximum level at the end of the second stage with a zero marginal product.
Stage III: In this third stage total production declines and marginal product becomes negative. And the average production also started decline. Which implies that the change in input factors there is a decline in the over all production along with the average and marginal.
In economics, the production function with one variable input is illustrated with the well known law of variable proportions. (below graph) it shows the input-output relationship or production function with one factor variable while other factors of production are kept constant. To understand a production function with two variable inputs, it is necessary to know the concept of **iso-quant or iso-product curve.**

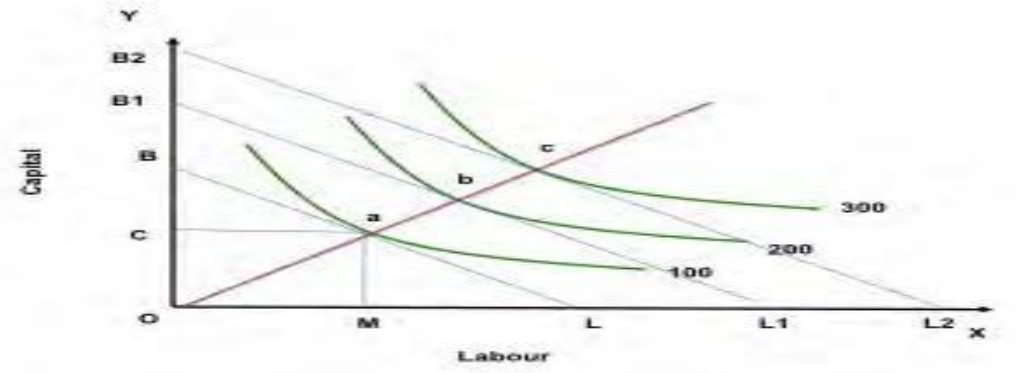


Q.4. Explain the concept of ISO-Quant or Iso-product curve.

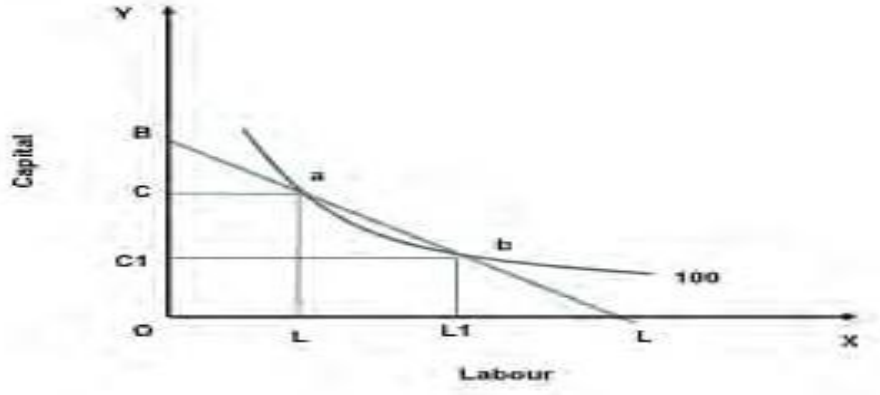
Ans. To understand the production function with two variable inputs, iso-quant curve is used. These curves show the various combinations of two variable inputs resulting in the same level of output. The shape of an Iso-quant reflects the ease with which a producer can substitute among inputs while maintaining the same level of output. From the graph we can understand that the iso-quant curve indicates various combinations of capital and labour usage to produce 100 units of motor pumps. The points a, b or any point in the curve indicates the same quantum of production. If the production increases to 200 or 300 units definitely the input usage will also increase therefore the new iso-quant curve for 200 units (Q1) is shifted upwards. Various iso-quant curves presented in a graph is called as iso- quant map.

Iso-cost: different combination of inputs that can be purchased at a given expenditure level.

The above graph explains clearly that the iso quant curve for 100 units of motor consists of 'n' number of input combinations to produce the same quantity. For example at 'a' to produce 100 units of motors the firm uses OC amount of capital and OL amount of labour ie., more capital and less labour force. At 'b' OC1 amount of capital and OL1 labour force is used to produce the same that means more labour and less capital.



Optimal input combination: The points of tangency between iso quant and iso cost curves depict optimal input combination at different activity levels.



Expansion path: Optimal input combinations as the scale of production expand. From the graph it is clear that the optimum combination is selected based on the tangency point of iso cost (budget line) and iso- quant ie., a, b respectively. The point 'a' indicates that to produce 100 units of motor the best combination of capital and labour are OC and OM which is within the budget. Over a period of time a firm will face various optimum levels if we connect all points we derive expansion path of a firm.

Q.5. Define Consumer Surplus and explain its concept.

Ans. Concept : Very often the price which a consumer pays for a commodity is less than what he is willing to pay for it, so that the satisfaction which he derives is more than the price paid for it. This extra satisfaction is termed as Consumer Surplus.

Definition : According **Alfred Marshall**, "The excess price which a person would be willing to pay rather than go without the thing, over that which he actually does pay is the economic measure of this surplus of satisfaction. It may be called Consumer's Surplus".

Thus, Consumer's surplus is the excess of utility obtained by the consumer over foregone or disutility suffered. It is measured by the difference between the maximum price which the consumer is willing to pay for a commodity and that which he actually does pay.

Symbolically

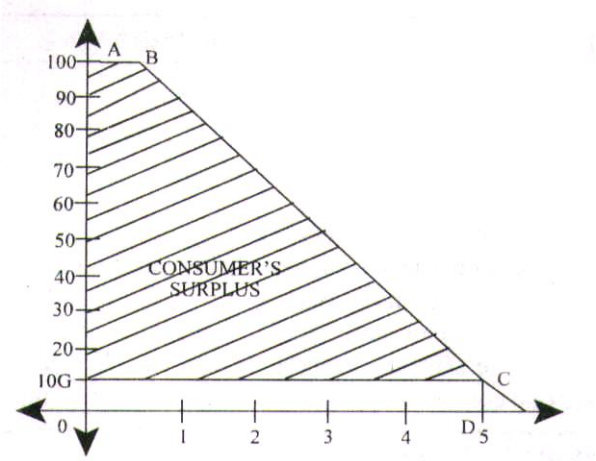
Consumer Surplus = (What a consumer is ready to pay) – (What is actually pays)

- Value in use – Value in exchange
- $\sum MU_x$ – (Price x No. of units)
- $\sum MU_x(TU) - \sum P_xQ_x$

Marshall makes use of the demand curve to illustrate the concept of consumers surplus.

Unit of a Commodity	**Marginal unity to the consumer**	**Price of the product**	**Consumer's surplus**
1	100	10	100-10=90
2	80	10	80-10=70
3	55	10	55-10=45
4	35	10	25-10=25
5	10	10	10-10=0
	280	**50**	**280-50=230**

Thus from the above table it is clear that the consumer was willing to pay Rs. 280 for 5 units of a commodity. But he had to pay only 50. Thus the consumer's surplus is Rs. 280-50= Rs. 230.



In the given diagram ODCBA represents the total utility and OGCD represents the amount of utility made. Thus GCBA represents the consumer's surplus.

The concept of consumes surplus is based on the law of diminishing marginal utility. This law states that with every successive increase in the quantity of a commodity consumed its marginal utility falls. This means that a rational would restrict his consumption where marginal utility is equal to price. It means that the consumers will be in equilibrium when he purchase as many number of units of a good at which marginal utility is equal to price. Since the price is fixed for all the units of the good he gets extra utility for his purchases except for there one at margin. This extra utility or surplus for the consumers is called 'Consumer's Surplus."

Q.6. What are the assumptions of consumer surplus? Explain its advantages and limitations.

Ans. Assumption :

(i) Utility is measurable

(ii) The marginal utility of money is assumed to be same.

(iii) The utility of a commodity is dependent on its supply.

(iv) The commodity in question has no close substitute.

(v) MU_m = Constant

(vi) Price of commodity given

Usefulness/Advantage :

(i) It helps to make economic comparisons about the people's welfare between two places or countries.

(ii) The concept is useful in understanding the pricing policies of a discriminating monopolist.

(iii) It helps in evaluating the economic effect of a tax or bounty on a commodity.

(iv) It helps to measure the benefits from international trade.

Limitations :

(i) The assumption that utility and satisfaction bear definite relationship is not correct.

(ii) The assumption that marginal utility of money is constant is most unrealistic.

(iii) It is quite impossible to say that a commodity will have no close substitute.

(iv) Consumer surplus cannot be measured in case of luxuries and bare necessities of life.

(v) The assumption that in measuring the consumers surplus all determinants of demand except the price remains constants does not hold true.

Q.7. Write a short note on consumer's equilibrium and state its assumptions.

Ans. Consumers Equilibrium : A consumer is said to be in equilibrium when he is deriving maximum possible satisfaction from the given commodities and is not in a position to rearrange his purchases of goods, say x and y.

Assumptions in Consumers Equilibrium :

(i) The consumer has an indifference map, which depicts his scale or order of preference for various combinations of two goods, say x and y.

(ii) He has fixed income to spend on x and y completely.

(iii) Prices of goods x and y are given and do not change.

Q.8. What do you understand by utility. State the approaches for measurement of utility.

Ans. Utility is the capacity of a commodity to satisfy human wants. It is defined as a "**want satisfying power of a commodity**". It is a subjective concept and has no material existence. It is not inherent in a commodity but depends upon the mental make up of the consumer. The same commodity may have different degrees of utility for different persons. Utility cannot be equated with usefulness. A commodity may not be useful, yet it may have utility for a particular person.

There are two approaches for **measurement of utility :**

(i) Measurement of utility in terms of money is called **Cardinal Utility Approach.** The amount of money which a consumer is prepared to pay for a commodity in the indirect measurement of its utility.

(ii) Measurement of utility in term of ordinal numbers like I, II, III and so on it is **Ordinal Approach.** In ordinal approach we may say that I is preferable to II etc.

Q.9. What is marginal utility? How is it related to total utility?

Ans. Marginal Utility: It is the additional utility derived from additional unit of a commodity.

The total utility and marginal utility are closely related with each other. Their relationship can be illustrated as below:-

Relationship between Total Utility and Marginal Utility

Number of Apples	Total Utility	Marginal Utility
1	30	30
2	55	25
3	75	20
4	90	15
5	100	10
6	105	5
7	105	0
8	100	-5
9	90	-10
10	75	-15

The above table reveals the following :-

(a) The marginal utility, before the point of satiety, is always positive, but with the consumption of every additional unit of a commodity, it goes on diminishing.

(b) The marginal utility accruing from the consumption of the various units of a commodity, no doubt, goes on diminishing, but the total utility accruing to the consumer goes on increasing at a diminishing rate.

(c) The marginal utility falls to zero at the point of satiety, but the total utility remains constants and stops increasing further from this point onward. Thus, we can say that the total utility becomes maximum when the marginal utility falls to zero.

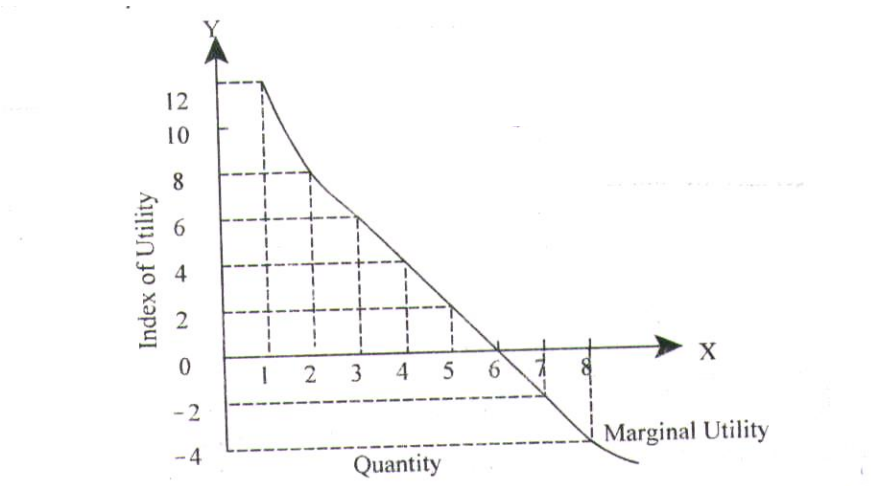
(d) If the consumption of the commodity continues even beyond the point of satiety, then the marginal utility accruing from the various units becomes negative, and the total utility starts diminishing. Thus, we conclude that the total utility is maximum when the marginal utility falls to zero and when the marginal utility becomes negative, the total utility also starts diminishing.

Q.10. State the law of Diminishing Marginal Utility.

Ans. The law in based on an important fact that although total wants are unlimited, each single want is individually satiable. It means that since each want is satiable, the intensity of want goes on diminishing as the consumer goes on increasing the units of consumption. This law is in also known as **'Gossen's First law.'**

To put it on Marshal's Word, "The additional benefit which a person derives from a given increase of his stock of thing diminishes with every increase in the stock that he already has."

Units	**Total Utility**	**Marginal Utility**
1	12	12
2	20	8
3	26	6 — Positive Utility
4	30	4
5	32	2
6	32	0 — Zero Utility
7	30	-2
8	26	-4 — Negative Utility



The above table shows the total and marginal utilities derived by a consumer on consumption of a certain good. When the 1st unit is taken, total utility, is 12 units and marginal utility is also 12 units. Further, as he goes on 5th unit, the total utility increases, but at a diminishing rate, i.e. 20, 30, 32…….. but marginal utility falls with every successive unit of consumption i.e. 8,6,4,2 when 6th unit in taken no addition is made to total utility and marginal utility falls to zero. Further, when units taken are increased to 7th and 8th units, total utility falls and marginal utility turns

negative. This means that now at this stage the consumer may also derive dissatisfaction instead of satisfaction. Hence, the consumer would restrict his consumption to 6^{th} unit.

It can be seen from the given figure that the marginal utility curve goes on declining continuously, the law of diminishing marginal utility applies almost to all commodities. However, few exceptions are there as pointed out by some economists.

Exception to the Law :

(i) Rare Commodities (ii) Alcohol (iii) Music

(iv) Miser Man (v) Complementary Goods

Q.11. State the law of Equi-marginal utility.

Ans. The consumer will distribute his money income between the goods in such a way that the utility derived from the last rupee spent on each good is equal. Means consumer is in equilibrium position when marginal utility of money expenditure on each good is the same. The marginal utility of money expenditure on a good or the utility of the last rupee spent on the good is equal to the marginal utility of the good divided by the price of that good.

Assumption of the Law :

(i) Measurability
(ii) Rationality
(iii) Constancy of marginal utility of money
(iv) Law of Diminishing Marginal Utility goods
(v) No change in taste, preference, income & fashion
(vi) No change in price of substitute & complimentarily goods
(vii) Divisibility of goods

$$MU_{Money} = \frac{MU_x}{P_x}$$

Consumer will be equilibrium in respect of the purchase of two goods x and y when,

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} = MU_{Money}$$

Thus with several goods to buy with a given money income the consumer will maximizing utility and be equilibrium when the following condition prevails.

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} = ... = \frac{MU_n}{P_n} = MU_{Money}$$

MU of Goods X and Y

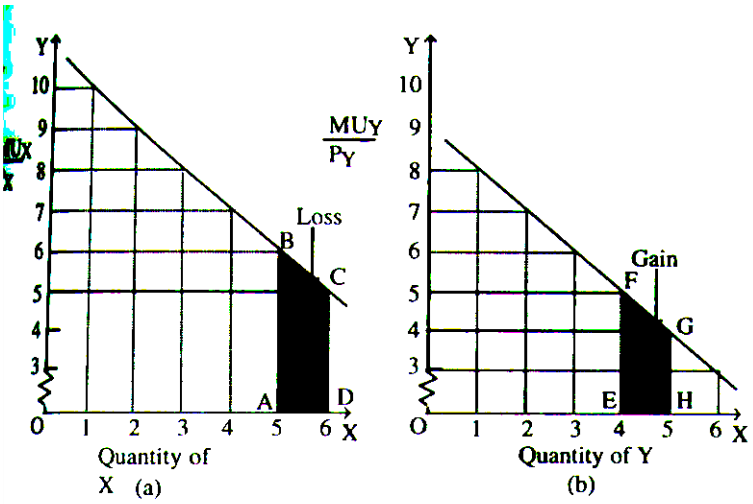
Units	MU_x	$\frac{MU_x}{P_x}$	MU_y	$\frac{MU_y}{P_y}$
1	20	10	24	8
2	18	9	21	7
3	16	8	18	6
4	14	7	15	5
5	12	6	12	4
6	20	5	9	3

If the price of goods x and y be Rs.2 and Rs.3 respectively and the consumer has Rs.24 to spend on the two goods. It is clear that weighted MU_x is equal to 5 units when the consumer purchases 6 units of goods x and weighted MU_y is equal to 5 units when the consumer purchases 4 units of goods y. Therefore, consumer will be in equilibrium when he is buying 6 units of goods x and 4 units of goods y. Thus in the equilibrium position where he maximizes his utility.

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} = MU_{Money}$$

$$\frac{10}{2} = \frac{15}{3} = 5$$

Consumer equilibrium can be depicted graphically :-



When the consumer is buying OH of x and OK of y, then

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} = MU_{Money}$$

This law of equi-marginal principle is applicable to :-

(i) **Organization of Production**
(ii) **Optimum Distribution of Factor Rewards**
(iii) **Apportionment of General Resources**

Unit-6

Market Structure and Pricing practices

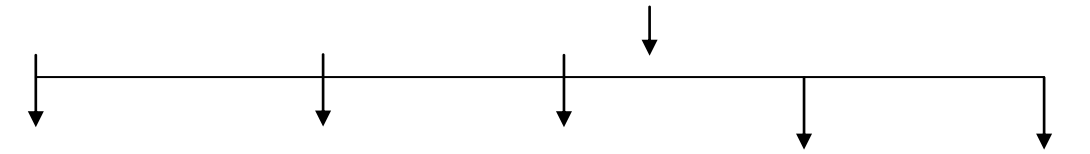
Q1. Explain the concept of Market?

Ans.: The term market refer to particular medium through which buyer & seller meet each other and buy and sell the goods & services.

Characteristics of Market :

A. Existence of Buyer and Seller
B. Communication between Buyer and Seller
C. Place and Medium through which interact.
D. Commodity and services demanded and sold
E. Entry and Exit of Buyer and Seller
F. Any types of Competition among seller
G. Knowledge about market

Types of Market



Area	Function	Time	Legality	Competition
• Local	• Mixed	• Very Short	• Fair	• Perfect
• Regional	• Specialized	• Short	• Black	• Imperfect
• National		• Long		• Monopoly
• International		• Very Long		

Q.2 What is Perfect Competition?

Ans.: The Perfect Competition is a form of market situation in which there is a large number of buyers and sellers, who buy and sell. It can sell its output in the market at the fixed equilibrium price of output by the industry.

Feature of Perfect Competition :

(i) There are a large number of undifferentiated buyer and sellers.

(ii) The sellers sell homogeneous products.

(i) There is no restrictions on the entry and exists of the buyer and seller.

(iv) Both buyers and sellers have the perfect knowledge of the market.

(v) All the factors are perfectly mobile.

(ii) The market price must be flexible over a period of time is to the changing conditions of supply and demand.

(iii) There should not be any artificial restriction on the demand and supply, prices of goods and factors of production in the market.

(iv) A perfectly competitive market assumes the non-existence of transport cost.

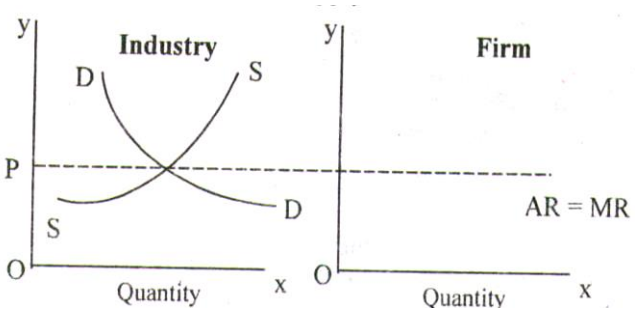
(v) Under perfect competitive market there is a separate existence of industry and its group of firm fixes the selling price.

(vi)

Pure Competition		**Perfect Competition**
1.	Large no. of buyer and seller	Large no. of buyer and seller
2.	Homogeneous Product	Homogenous Product
3.	Uniform Price	Uniform Price
4.	Free Entry and Exit	Free Entry and Exit
		Perfect Mobile factor of production
		Perfect knowledge
		No Transportation Cost

Q.3 How price determine under perfect competition?

Ans.: Industry is a group of producers or firms. In a perfectly competitive market the equilibrium price of a commodity is determined by the Inter section of the market demand curve and the market supply curve. Market demand curve is the horizontal summation of the individual demand curves whereas market supply curve is the horizontal summation of the firms supply curves.



In the above figure, DD is the market demand curve, while SS is the market supply curve. Equilibrium is attained at T where two curve intersects. At equilibrium price OP, the quantity sold by the industry is OQ.

The price so determined by the industry is accepted by each individual firm as given. Under conditions of perfect competition, an industry is the price maker, while a firm is a taker.

Q.4 What are the conditions of Equilibrium of a Firm?

Ans.: Every firms aims at drawing such an output-price strategies that it should earn maximum profit and minimum loss such a situation is termed as the equilibrium of the firm.

A firm is in equilibrium has no motive to change its organizations or scale of production which is possible when it is earning maximum net profits.

Conditions of Equilibrium of Firm :

(i) A firm will be in equilibrium when it has no tendency to increase or contract level of output.

(ii) Marginal cost of the firm must be equal to marginal revenue (MC = MR).

(iii) Marginal cost (MC) must cut marginal revenue (MR) Curve from below.

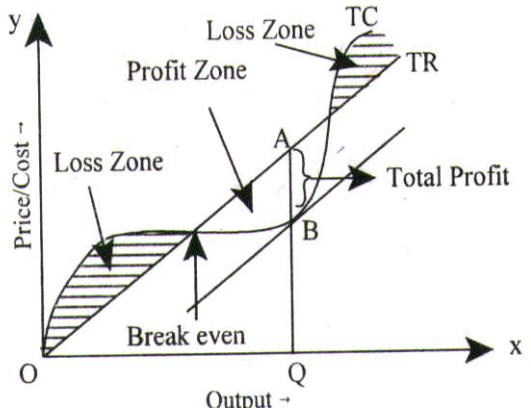
A competitive firm, in order to reach equilibrium will produce output at a given price which maximizes its profit and minimizes the loss. There are two approaches to explain equilibrium of a competitive firm.

(i) Total Revenue and Total Cost Approach

(ii) Marginal revenue and Marginal Cost Approach

(i) **Total Revenue and Total Cost Approach :** It is the simplest way to determine the equilibrium of firm. In order to find out the profit of firm. The difference between total revenue and the total cost is maximum, symbolically

Profit = Total Revenue – Total Cost



In the above figure, TC is the total cost and TR is the total Revenue curve of the firm. The difference between TR and TC is measured by the vertical distance at a point on two curves. The vertical distance between TR and TC curves is the maximum at OQ output. Firm obtains AB profit at equilibrium

level of output. In case the firm decide to produce any output, other than the equilibrium output its profit will fall.

(ii) **Marginal Revenue Marginal Cost Approach : A**t different levels of output the profits of a firm will be maximum at that level of output whose MC is equal to MR.

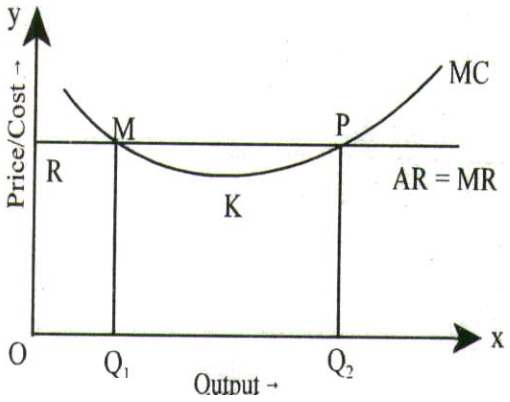
MR = MC

Or MR - MC = Zero

MR and MC equality approach to firms equilibrium i.e. based on two conditions.

(a) **First Order or Necessary Condition :** The firm's MC must be equal to its MR at the equilibrium level of output.

(b) **Second Order or Sufficient Condition :** At the equilibrium level of output the MC should be rising i.e. the MC curve should have a positive slope.



Firm's first order, condition of equilibrium is satisfied both at point M and point P, where. MC Curve intersects the MR Curve. However at point M firm does not get maximum profit because the second order condition of equilibrium is not satisfied. In case the firm decides to produce output more than OQ2, its MC being less than MR, It will earn profits, The firm would extend the output up to OQ2 level (where both the conditions are satisfied) and at equilibrium point P because with this output

(a) MC = MR

(b) MC curve interest MR curve from below

Q.5 Describe the Price - Output Equilibrium of Firm under Perfect Competition in Short-Run.

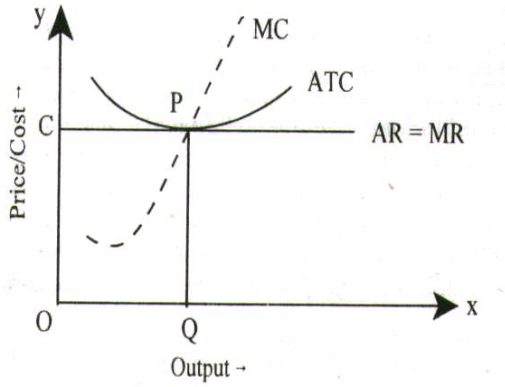
Ans.: In short run, under perfect competition, a firm may earn or suffer :-

(1) Normal Profit

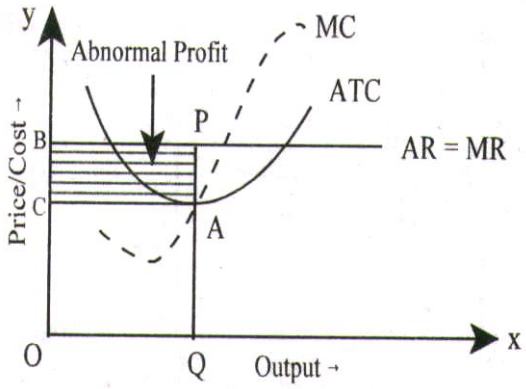
(2) Abnormal Profit

(3) Losses

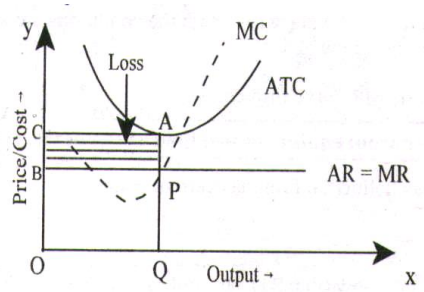
(1) **Normal Profit :** The figure shows that P is the equilibrium point of a firm. It is the level where MC = MR At output OQ and price OC, AR = ATC. At this level the firm will neither earn profit nor suffer loss i.e. it is the normal profit level.



(2) **Abnormal Profit :** Profit will be maximum when MC curve cuts the MR curve from below. Thus the equilibrium is at point P. At output OQ and price OB, AR> ATC. It represents that the firm earns an abnormal profit. (i.e. BCAP).



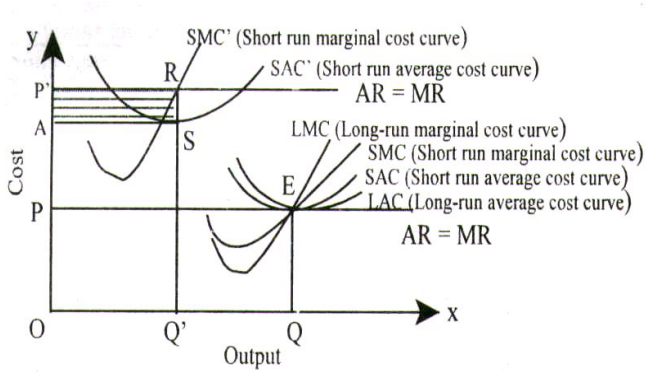
(3) **Losses :** the equilibrium of the firms is at point P where MC = MR. At output OQ and price OB, the firm suffers losses (i.e. CBPA), Since the AR <ATC.



Q.6 Describe the Price-Output Equilibrium under Perfect Competition in Long-Run.

Ans.: Under perfect competition, long run is that period where a producer can change its supplies by changing all the production factors. He has sufficient time to adjust his

supplies according to the changing demands. In long run, the firm is at equilibrium where marginal cost becomes equal to price. Besides, the firm under perfect competition to be at equilibrium price should be equal to average cost. Generally, in long run, the firm earns normal profit. In case it incurs super normal profit, the production of existing firms will increase, and also some new firms will enter into the market. This increases the supply of products and a fall in price is depicted. Because of this firm will earn normal profit. But, if the price is less than AC, the firm will suffer losses. These losses would force some of the firms to leave the industry. As a result, the output of the industry will decrease which will increase the price an as such the firm will begin to earn normal profit.



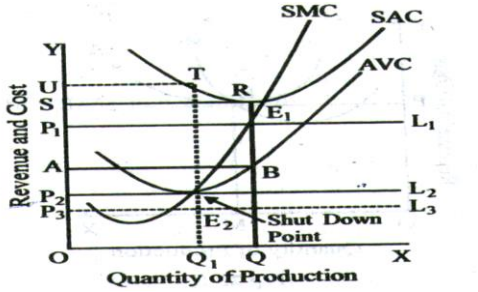
The figure, shows that output is on x-axis, and cost on y-axis. OP is the price and at this price the firms produces with SAC and earns super normal profit (i.e. PASR). Due to this, the existing firm increases it production capacity and the new firms enter the industry. Consequently, the supply increases and there is a fall in price. Thus, the price falls to OP. At this level, the firm will be at equilibrium at point E and produces OQ level of output. The reason for this is that, at point E, AR, MR, LMC, LAC all are equal and the firm earns normal profit.

Q.7 What is meant by breakeven-point?

Ans.: BEP refer to fire's that level of output at which its TR = TC. At this point the firm gets neither super normal profit, nor incur losses but gets normal profit only.

Q.8 What is meant by shut down point?

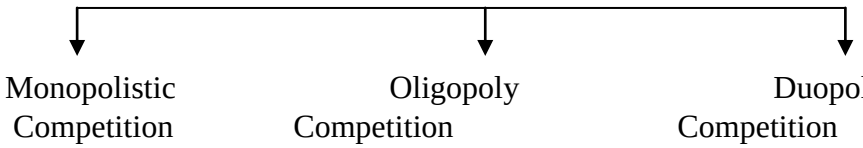
Ans.: The shut down point of a firm is firm's that level of output at which market price of its product is just equal to its variable cost or at which firm's loss is equal to F. C. It is technically called shut down point because the moment market price falls further and the firm is unable to recover even its variable cost, it discontinues its production.



Q.8 What is Imperfect Competition?

Ans.: Market is said to be imperfect when large no. buyers and sellers and both are not fully aware of the prices at which transactions take place.

Imperfect Competition



Q.9 What is a Monopolistic Competition?

Ans.: Monopolistic competition implies that market situation where there are many sellers, but there is a product differentiation between each seller. The individual decisions about pricing and output are not considered.

According to Leftwitch, "Monopolistic competition is a market situation in which there are many sellers of a particular product but the product of each seller is in some way differentiated in the minds of consumers from the product of every other seller."

The main features of a monopolistic competition are:

(i) Large Number of Buyers and Sellers

(ii) Free Entry and Exist of Buyer and Seller

(iii) Product Differentiated

(iv) Free pricing policy of Firm

(v) Imperfect knowledge of the market.

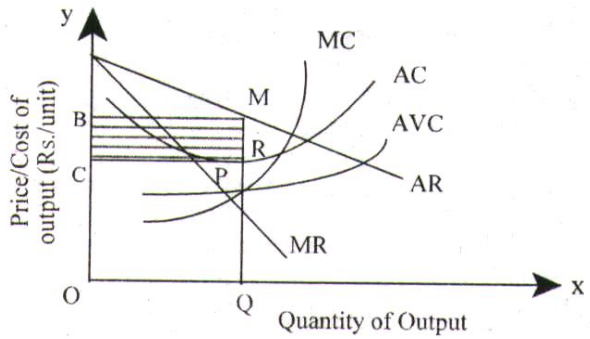
(vi) Non price Competition (Advertisement Exp.)

Q.10 Describe the Equilibrium of a Monopolistic Firm?

Ans.: Every firm will choose to produce that particular output at which it will be able to secure maximum amount of profits. The equilibrium price and output is indicated by the equality of MR and MC. Basically, the equilibrium under monopolistic competition involve :-

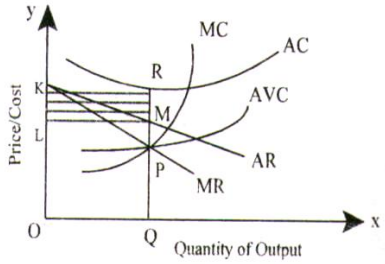
Equilibrium in Short-Run : In a short run, a monopolistic competitive firm attains equilibrium where its MC equals MR, and the MC is rising at the equilibrium point. In a short run, the firm has to confront both fixed cost and variable cost. The firm will not produce, If it fails to recover the variable cost. The firm may get abnormal profits, suffer losses or may first manage to get normal profits in the short run.

(i) **Firm may Earn Abnormal Profit :** A monopolistic firm shall earn abnormal profits if its average revenue is more than average cost at the equilibrium level of output.

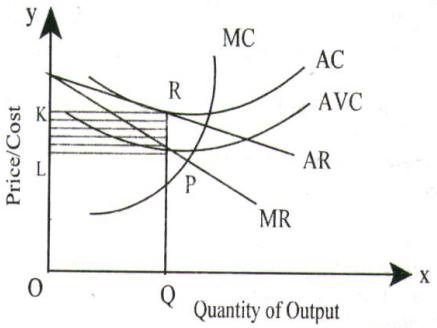


At the equi OR, the firm produces. OQ output since at OQ output, firm AR is more than its AC (AR > AC) it gets profit because it manages to recover both the fixed cost and virable cost.

(ii) **Firm may Outflow Loss :** In the short run the firm may suffer losses if its AR < AC. At the equilibrium price OR, the firm produces OQ output where AC>AR. The firm, incur loss equal to KLMR due to the non-recovery of fixed cost. In spite of these losses the firm will continue to produce because it managers to recover the Average Variable Cost.



(iii) Firm may work at Normal Profit or Break even level: In the shot run monopolistic firm may get normal profits in the short run. It would happen when the firm's AR = AC.

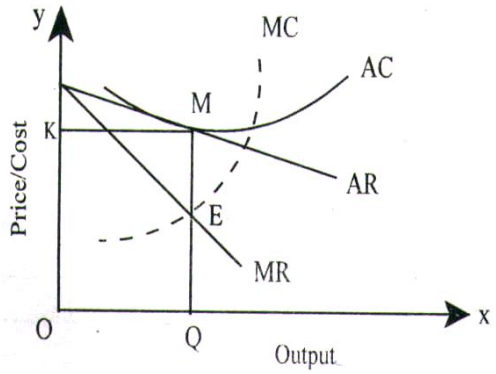


At equilibrium price OR, (where it MC curve intersects MR curve) the firm produces OQ output. Since at OQ output firm's AR = AC, it will neither earn/get profit nor suffer loss, but will get normal profits only.

Equilibrium in Long-Run : During the long run new firms can established, existing firms can expand their size and all factor inputs can undergo a change.

"No Monopolistic competitive firm receives abnormal profit in the long run".

Basically, the firms in the long-run will get the normal profits, if, the existing firms are making super normal profits, it will attract; some of the new firms in the industry. The entry of new firms will result into over production which will have a depressing effect on price. Hence all the firms in the long run will get normal profit.



The firm is in equilibrium because at point E, MC= MR. Since, at this equilibrium AR is tangent to long run AC at point M. hence, the firms are earning normal profits.

Q.11 What is a Monopoly?

Ans.: Monopoly is a market structure in which there is only one single seller or producer of the commodity which has no close substitute.

Kinds of Monopoly :-

(i) **Absolute Monopoly :** It refers to that market where there is one and only one seller of a product, having no substitute.

(ii) **Relative Monopoly :** It refers to single firm which constitutes the whole industry. In this form there is no difference between firm and industry.

(iii) **Simple Monopoly :** It refer to that market where there is one price is taken by all the consumers.

(iv) **Discriminating Monopoly :** It refer to that market where there is different price are taken by different consumers.

(v) **Private Monopoly :** It refers to that market where there is firm's ownership is in the private hands.

(vi) **Public Monopoly :** It refer to that market where there is firm's ownership is in the hand of Govt. such as Railway.

Q.12 What are the main features of Monopoly?

Ans.: (i) There exists a single producer-cum-seller firm in the market and there are large no. of buyers who cannot influence the price of output by their individual action in the markets.

(ii) Full control over the supply of the product.

(iii) There is a strict restriction i.e. barrier on the entry of new firm in the market.

(iv) The monopolist is in a position to set the price himself.

(v) There is an incurrence of informative selling cost in the beginning to inform the buyers about the output.

(vi) The aggregate demand for the output of a monopoly firm of all the buyers constitute the demand for the output of a monopoly firm in the market. The demand curve of monopoly firm left to right downwardly with negative tangential slope. It means, if the monopolist reduces the price of his product, demand of that product will increase and vice-versa. E.g. Public utility Services such as railways, water supply, electric supply etc.

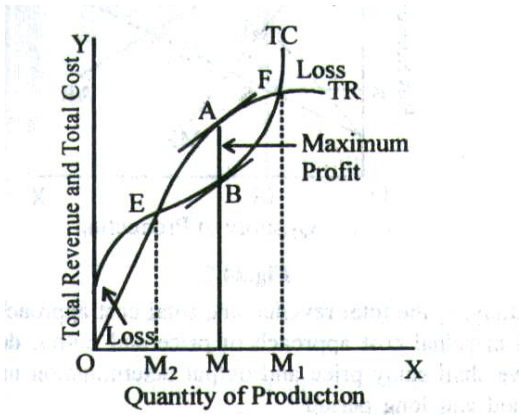
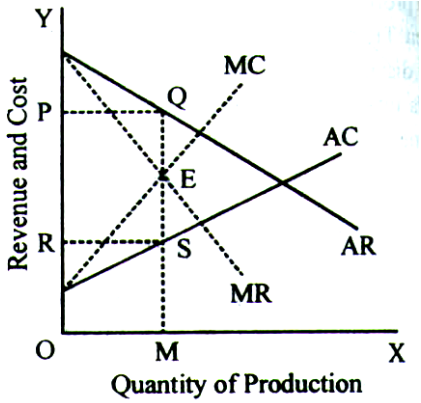
(vii) Concept of firm & industry is same.

(viii) AR and MR both are different & downward sloping and stepper.

(ix) Firm is price taker and price maker.

Q.13 Describe the Equilibrium of a Monopoly Firm?

Ans.: Like a competitive firm, the, prime objective of a monopoly firms is to maximize its profits or minimize losses. There are two approaches to study equilibrium of a monopoly firm :-

TR & TC Approach	**MR & MC Approach**
	

Q.14 How is Price determined under Monopoly?

Ans.: Price Determination under Monopoly :

(1) **Short–Run Equilibrium under Monopoly :** Short period refers to that period in which the monopolist has to work with a given existing plant. During short-run monopolist cannot expand or contract the size of his plant nor can be change the structure of the fixed cost. Monopolist can increase his output by changing the variable factors.

In the short run, the monopoly firm may enjoy super-normal profits, i.e. abnormal profit, normal profits and sustain losses.

(i) Firm may Enjoy/Abnormal Profit :

Equilibrium point = E

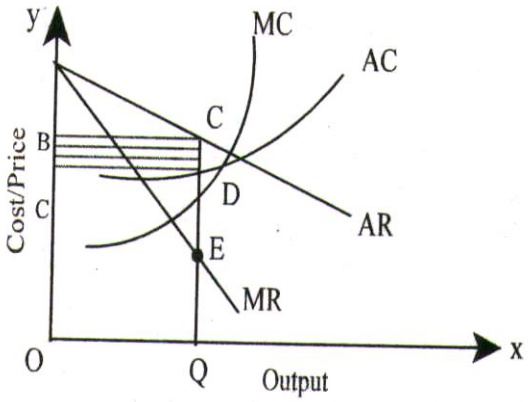
Where MR = MC

MC cut MR from below

Equilibrium output OQ

AR > AC

Total Profit = ABCD



(ii) Firm may Work at Normal Profit:

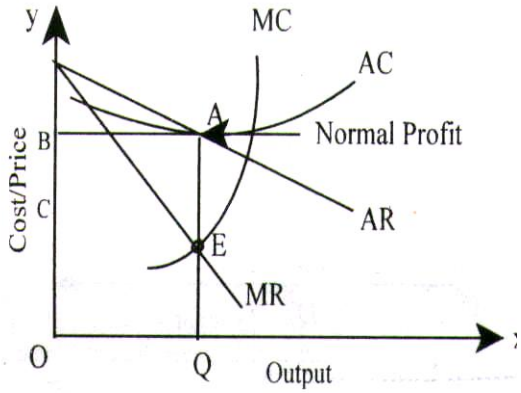
Equilibrium points = E

Equilibrium output = OQ

At point E MR = MC and MC cuts MR from below

AR = AC

Firm will earn normal profit



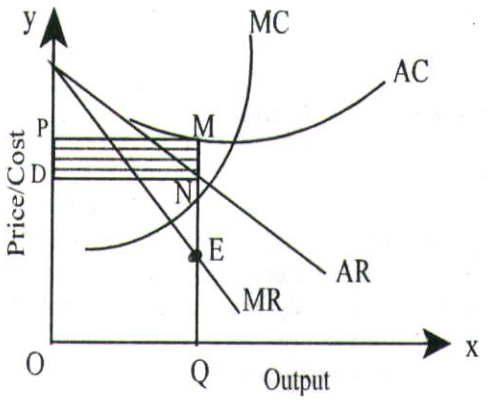
(iii) Firm may Suffer/ Losses :

At equilibrium point E

MR = MC & MC cuts MR from below

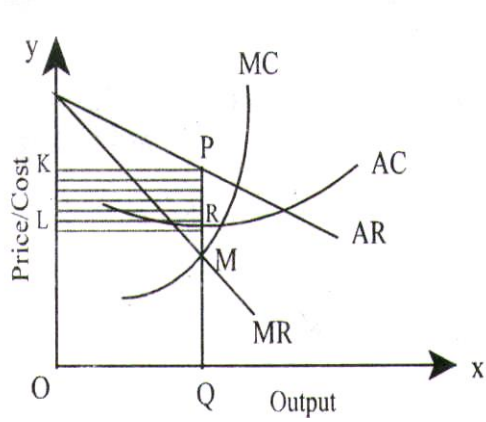
AC > AR

Monopolist firm suffer loss equal to MNDP



(2) **Monopoly Price during Long-run :** Long run is a period in which output can be changed by changing the factors of production. The long-run equilibrium of the monopoly firm is attained at that level of output where its MC equal the MR. Monopoly firm in the long-run gets abnormal profit. It is also because the new firms are not allowed to enter the market.

Monopoly firm does not suffer loss in the long run, because all costs in the long-run are variable and these must be recovered. It fails to do so it would better stop production and quit the market.



Effect of Monopoly

Advantages		**Disadvantages**
1.	Economics of large scale of production.	i) Exploitation of consumer. ii) Exploitation of workers.

2. 3.	Lower selling cost. Incentive for research & development. Check on wastage of resources. Public utilities available to all.	iii) No incentive for greater efficiency. iv) Inequalities of wealth. v) Hindrances in the establishment of new enterprises. vi) Political corruption & bribery. vii) Fluctuation in the prices.

Q.15 What is Discriminating Monopoly or Price Discrimination?

Ans.: "The act of selling the same article produced under a single control at different places to different buyers at different prices is known as price discrimination."

Kinds of Price Discrimination :

(i) Personal Price Discrimination

(ii) Geographical Price Discrimination

(iii) Trade Discrimination

(iv) Time Discrimination

(v) Demographic Discrimination

Essential Conditions for Emergence of Price Discrimination :

(i) Existence of two or more than two Market/Market Imperfections.

(ii) Existence of Different Elasticities of Demand in Different Markets

(iii) No Possibilities of Resale

(iv) Legal Sanction

(v) Full Control over the Supply

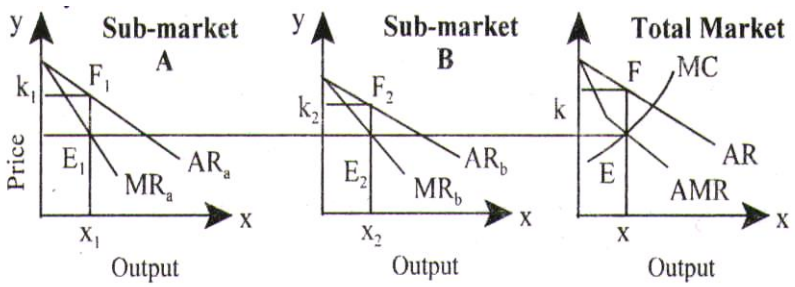
Q.16 How is Price determined in Discriminating Monopoly?

Ans.: Under price discrimination the seller divides the buyers or market into two or more groups and then charges higher price to the buyers/markets having the less elastic demand Equilibrium of the monopolist under price discrimination is attained when his marginal cost equals the marginal revenue. Since the commodity is produced under a single control and sold in more than one market, there will be only one marginal cost curve, while marginal Revenue curves will be more than one.

Thus the monopolist has to take two decisions:-

(i) How much total output should be produced?

(ii) How the total output should be shared between the two sub markets?



In the above figure the elasticity of demand of sub market A is less than sub market B which has greater elasticity of demand.

AMR is the combined marginal revenue curve of the whole market obtained by the lateral summation of MRa & MRb.

The discriminating monopoly will maximize his profits by producing the level of output at which MC curve cuts the AMR. It is clear that at OX level of output profit are maximum because at this level MR is equal to MC of the whole output in such a way that his profits may be maximum. Therefore, he will sell OX, level of output in such market A at price F, X, The Revenue is OX, F, K, Similarly in sub-market B, at, OX2 level of output he will sell at price X2 F2 and its revenue being O X2 F2.

Thus, Two conditions are required for the equilibrium of the discriminating monopoly.

(i) Aggregate MR = MC of totals output (ii) MRa = MRb = MC

Q.17 What are the Degree of Price Discrimination?

Ans.: Prof. A. C. Pigou has given the following three conditions of price discrimination :-

(1) **Price Discrimination of First Degree :** Price discrimination of first degree is said to exist when different rates are charged from the different buyers and different prices for different unit which a buyer may be prepared to buy. The price of each unit is equal to its demand price so that the consumer is unable to enjoy any consumers Surplus. Eg. Doctors, lawyers.

(2) **Price Discrimination of Second Degree :** In the second Degree the buyers are divided into different groups and form different groups a different price is charged which is lowest demand price of that group. This type of price discrimination would occur if each individual buyer had a perfectly in elastic demand curve for good below and above a certain price e.g. Railway charges fares in this way.

(3) **Producer of Third Degree :** Price Discrimination of Third Degree is said to exist when the Seller divides his buyers into two or more than two sub-

marketers and from each sub market different price is charged. The price so charged depends on the output sold along with demand conditions of sub-market.

Q.18 What is Oligopoly?

Ans.: That form of imperfect competition in which a particular commodity is produced by few firms only whose product are either homogeneous or are close substitute.

Features of Oligopoly :

(i) Few Seller

(ii) Large Buyer

(iii) Product may be Homogeneous or Differentiated

(iv) Interdependence

(v) Advertisement & Sales Promotion

(vi) Rivalry

(vii) Difficult to Enter & Exit of Firms

(viii) Price Rigidity …….

(ix) Demand Curve Uncertain

(x) Price rigidity and price war.

Types of Oligopoly :

(i) **Differentiated Oligopoly :** It is refers to that market condition product is differentiated produced by firms.

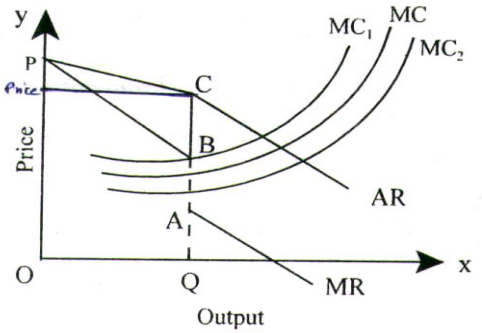
(ii) **Pure Oligopoly :** It is refer to that market where there is homogenous product produced by firms.

(iii) **Collusive Oligopoly :** It refer to that market where there all firms make cartel, to enjoy monopoly power.

(iv) **Independent oligopoly :** Firm free to produce & decide own price.

Q.19 How can Price be determined under Oligopoly?

Ans.: Firms under oligopoly aim at profit maximization. Under oligopoly, the point where the cost of producing and additional unit is equal to the revenue earned from an additional unit sold (i.e. MC=MR), is called the equilibrium point. This can be depicted from he following diagram:-



In the figure, x-axis refers to output and y-axis to price. Under oligopoly, the firm is at equilibrium when MC = MR. At this equilibrium, the firm produces, OQ level of output price. Until the MC curve cuts the MR curve in discontinuous portion, the price OP will remain constant. This is known as rigid price. The price will change only when MC curve cuts the MR curve in continuous portion. And, since any change in price will result in loss of profit, therefore, no change in price is made.

Q.20 What is kinked Demand Curve Hypothesis?

Ans.: Rival consciousness is a basic characteristics of oligopoly. Under oligopoly the price change by a seller depends largely upon the reaction of rivals. This results in one particular shape of demand curve under oligopoly i.e. kinked demand curve.

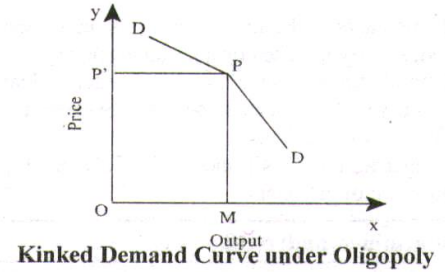
The assumption behind drawing this curve is that the 'Kink' in the curve is always at the ruling price. If a firm under oligopoly raise the price the rivals will not follow the suit rather they will allow the firm to increase the price and loose customers. Thus upper part of kink is more elastic.

On the other hand if the firm lowers its price the rivals will follow suit and lower their prices too thus the firm will not gain much by lowering its price. Thus lower part of kink is less elastic.

Since there is no gain in changing the price the oligopolist will stick to the prevailing price and thus a kink will form at the prevailing price.

In this curve the demand curve DD is kinked at P.

The prevailing price is MP at this price the firm sells OM output, Now the upper segment DP and lower segment PD show different elasticity DP is more elastic where as PD' is relatively less elastic. This difference in elasticity is due to rival consciousness existing between firms in oligopoly. It is due to this difference in elasticity that the demand curve is kinked at the prevailing price.



Kinked Demand Curve under Oligopoly

Unit -7

Concepts of National Income, Index Number and Business Cycle

Q.1 What is National Income?

Ans.: It is the flow of goods and services which become available to a nation during a year.

Alfred Marshall – The labour and capital of a country acting upon its national resources produce annually a certain net aggregate of commodities, material and immaterial, including services of all kinds. This is the true value of net annual income of the country or the national dividend.

PIGOU – The national dividend is that part of the community income including, of course, derived from abroad, which can be measured in money.

FISHERS – The true national income is that part of the annual net produce which is directly consumed during that year.

Q.2 What are the related concepts or aggregates of National Income.

Ans.: (1) **G D P_{MP} (Gross Domestic Product at Market Price) :** The final goods and services produce during a year within the domestic territory of a country. Gross indicate that the value of domestic product is inclusive of depreciation i.e. consumption of fixed capital within the domestic territory means within the boundary of the country including the production by domestic and by outsiders.

(2) **GNP_{MP} (Gross National Product at Market Price) :**

$$GDP_{MP} + NFIA = GNP_{MP}$$

NFIA (Net Factor Income from Abroad) is the difference between factor income earned by our resident from the rest of the world and factor income earned by our resident within our country.

(3) **NNP_{MP} (Net National Product at Market Price) :**

$$GNP_{MP} - \text{Depreciation} = NNP_{MP}$$

Depreciation also known as consumption of fixed capital refer to the loss of value of fixed assets on A/c of – Normal wear & tear, Normal obsolescence, accidental damage of machinery.

(4) **NDP_{MP} (Net Domestic Product at Market Price) :**

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

(5) **GDP_{FC} (Gross Domestic Product at Factor Cost) :** It is the sum total of factor income generated within the domestic territory of a country alongwith depreciation during a year.

(6) **GNP_{FC} (Gross National Product at Factor Cost) :**

$$GDP_{FC} + NFIA = GNP_{FC}$$

(7) **NDP_{FC} (Net Domestic Product at Factor Cost) :**

$GDP_{\mathbf{FC}}$ – Depreciation = $NDP_{\mathbf{FC}}$

(8) **NNP_{FC} (Net National Product at Factor Cost) (National Income) :**

GNP_{FC} – Depreciation = NNP_{FC}

(9) **National Disposable Income (NDI) :** The Income from all sources available to resident of a country for consumption, expenditure or for saving during a year.

(10) **Private Income :** Income & other payment relating to private sector. It includes all payments which are earned by private sector within the country and abroad, plus all current transfer payment.

(11) **Personal Income :** The total of all current income received by household from all sources.

All income which accrue to the factors i.e. earned by the factors are not received by them and on the other hand, there are certain payment which they receive but are not earned by them. Therefore, personal income is the total of all such payment and income received whether or not they have earned it.

(12) **Personal Disposable Income (PDI) :** That part of personal income, which the individual can spend the way they like, it is the income remaining with individual after deduction of all taxes levied against their income & property by the Govt.

(13) **Relationship :**

$GDP_{\mathbf{MP}}$ = $GDP_{\mathbf{FC}}$ + Indirect Taxes – Subsidies

$NDP_{\mathbf{MP}}$ = $NDP_{\mathbf{MP}}$ + Indirect Taxes – Subsidies

Q. 3 What are the various methods for measuring National Income.

Ans.: (1) **Product Method (Value Added method) :**

It estimates the contribution of each producing enterprise to production in the domestic territory of the country in an accounting year. First of all the various producing enterprise in a country are classified into primary, secondary and territory sector.

($GDP_{\mathbf{MP}}$) Net Value Added = Value of Output – Intermediate Consumption

Value of Output = Sale +Δ Stock

Δ Stock = Closing Stock – Opening Stock

Precaution should be taken :-

(i) The value of only final goods and sources should be included to avoid double counting.

(ii) Sale & purchase of 2^{nd} hand good should not be counted

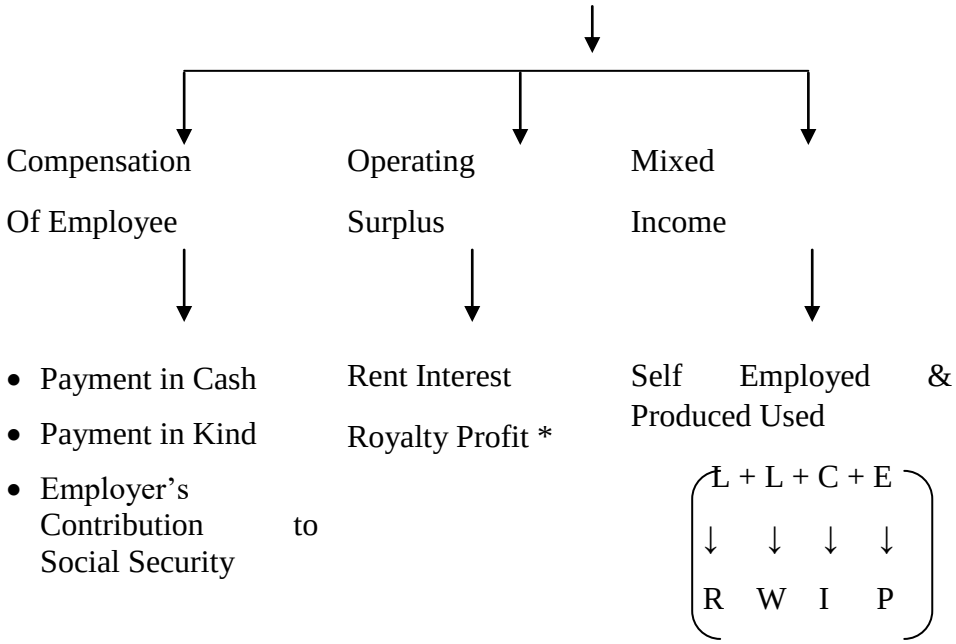
(iii) Services of housewife should not be counted.

(iv) Production for self consumption should also be included.

(v) Imputed rental value of the self occupied house should be included.

(2) **Income Method :** It measures NI from the payment point of view where payment is made in form of wage, rent, interest & profit to the primary factor of production i.e. labour, land, capital & enterprise respectively for their productive service in an accounting year.

NDP_{FC} (Income Method)



Profit = Dividend + Corporate Tax + Undistributed Profit

Precaution should be taken :-

(i) Windfall gain are not included.

(ii) Wealth tax, capital gain tax is not included.

(iii) Production for self-consumption should also be included.

(iv) Imputed rental value of self consumption house should be included.

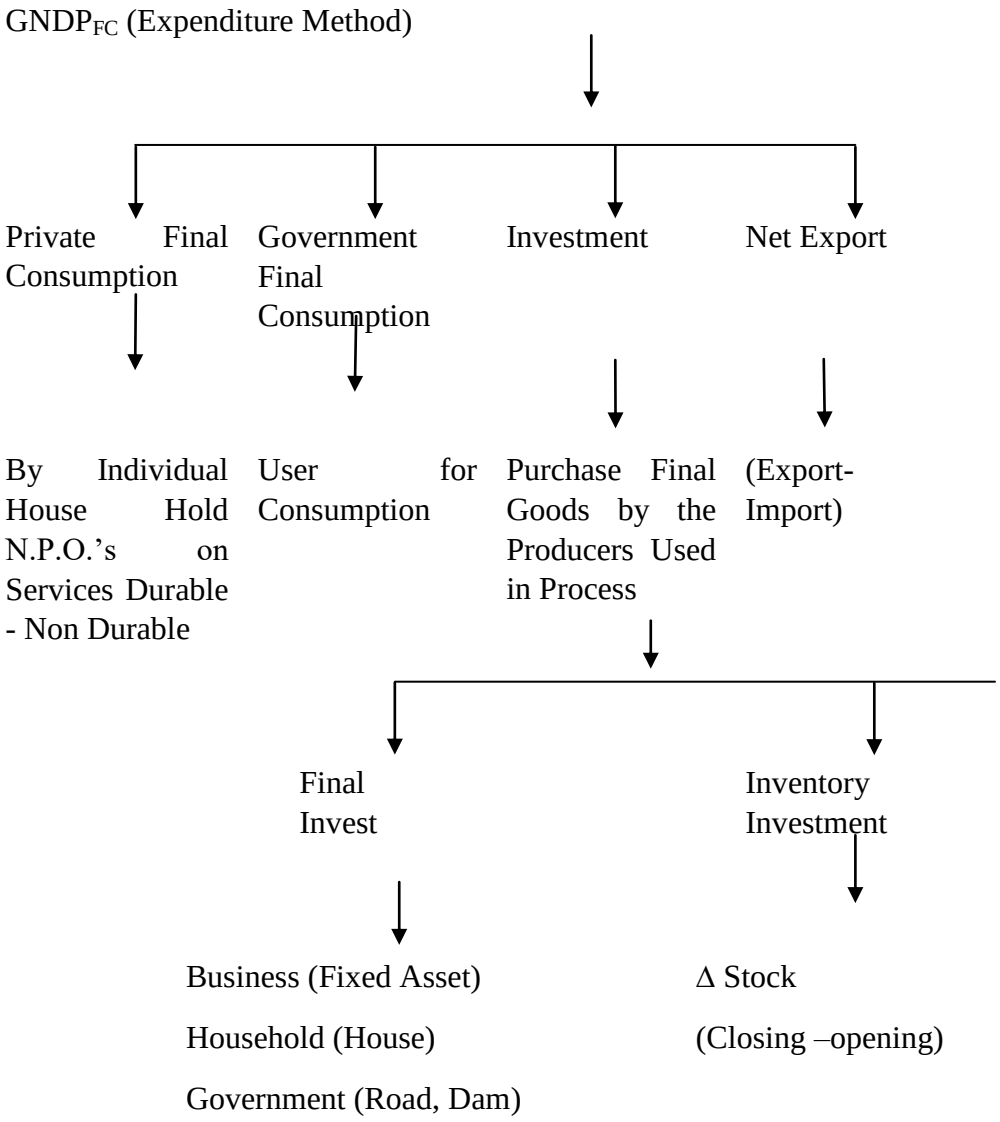
(v) Sale & purchase of 2^{nd} hand goods should not count.

(vi) Income of gamblers, smuggler etc. not included.

(vii) Financial transaction such as sale of share not included.

(3) **Expenditure Method :** It measure the final expenditure on GDPMP during an accounting year.

Expenditures are of two types - Final & Intermediate Expenditures.



Precautions should be taken :-

(i) Expenditure on 2nd hand goods should not be included.

(ii) Expenditure on financial transactions like purchase of share should not include.

(iii) Government expenses on transfer payment not include.

(iv) To avoid double counting only expenses On final goods and services is to be included.

(v) Intermediate expense is not included.

Q.4 List the difficulties in estimating National Income.

Ans.: (1) Lack of Well Organized Monetized Sectors

(2) Inadequate and Unreliable Data

(3) Illiteracy and Ignorance

(3) Occupational Specialization

(4) Difficulties in Economic Activities and Choice of Method

(5) Difficulty of Errors in Calculation

(6) Difficulties in Calculation of Value of Service

(7) Problem of Double Counting

(8) Lack of Statistical Organization

(9) Difficulties of Regional Diversities

(10) Indifference of the Public

Q.5 What do you understand by Index number?

Ans: An index number is a method of evaluating variations in a variable or group of variables in regards to geographical location, time, and other features. The base value of the index number is usually 100, which indicates price, date, level of production, and more.

Q.6 Explain importance and limitations of Index Number.

The advantages of Index numbers are directly linked with their usages. So the summation advantages are studies as under:

- It adjusts primary data at varying costs, which is useful for deflating. It facilitates the transformation from nominal wage to real wage.
- Index numbers find extensive usage in economics and help in the framing of appropriate policies. Such findings help with the establishment of researches as well.
- It helps in the case of trends such as drawing outcomes for irregular forces and cyclical forces.
- Index numbers can be leveraged in case of future development of activities in the economic sphere. This time series analysis is utilized for the determination of trends and cyclical developments.
- The number is useful in measuring the changes that take place in the standard of living in different countries over an established period.

Limitations of Index Number

We know everything existing has both advantages and limitations. Index numbers have a lot of advantages, but to an extent, this is when their limitations creep up. The limitations of index numbers are as follows:

- There are chances for errors given that index numbers come as a result of samples. These samples are put together after deliberation, which creates chances for errors. It can also be found in weights or base periods etc.
- It is always calculated based on items. Items that are so selected may not exactly be in trend, which in turn creates an inaccurate analysis.
- Multiple methods can be used to formulate index numbers. Due to this multiplicity of methods, outcomes may bring forward a different set of values which may further lead to confusion.

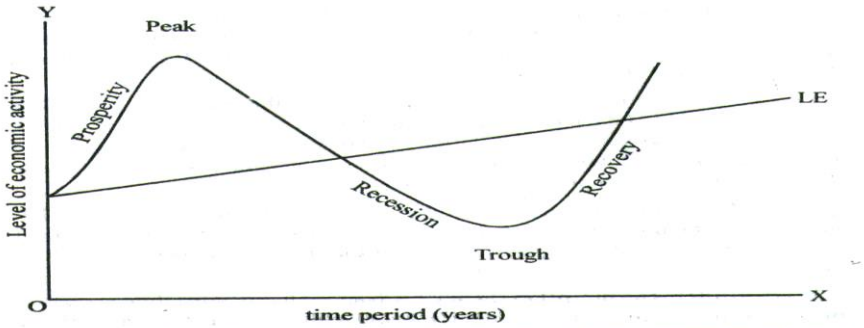
- The index numbers show the approximate indications of the relative changes that occur. Moreover, the changes in variables that are compared over a prolonged time may fall short on reliability.
- The selection of representative commodities may be skewed. It is since these commodities are based on samples.

Q.7 What is Business Cycle?

Ans.: A trade cycle is composed of periods of goods trade characterize by rising price and low unemployment Percentage altering with periods of bad trait characterized by falling prices and high unemployment percentage.

Q.8.Explain different phases of Business Cycle.

Ans.:



In the above diagram the line LE is the line of equilibrium or level of full employment.

(a) **Prosperity or Expansion :** In this stage increase production, high capital investment in basic industries, expansion of the bank credit, high prices, high profit, full employment.

(b) **Recession :** This stage is characterized by liquidation in the stock market, strain in the banking system and some liquidation of bank loan, small fall in price, sharp reduction in demand for capital equipment and abandoning of relatively new projects. Unemployment leads to full income expenditure, price & profits. It is cumulative effect once a recession starts it goes on gathering momentum and finally assumes the shape of depression.

(c) **Depression :** It is a protective period in which Business activities in the country is far below the normal. It is characterized by a sharp deduction of production, mass unemployment, low employment, falling prices, falling profits, low wages, and contraction of credit, high rate of business failures and an atmosphere of all round pessimism and despair all construction activities come to a more or less complete stand still during depression. The consumer goods industries and however, not much affected.

(d) **Recovery :** It implies increase in business activity after the lowest point of depression has been reached. The entrepreneur began to feel that the economic situation was after all not so bad. This leads to new innovation in business activities. The industrial production picks up slowly and gradually. The volume of employment also straightly increases. There is a slow rise in prices accompanied by a small rise in profit. Wages also raise new investment takes place in capital good industries. The bank also expands credit. Pessimism is gradually replaced by an atmosphere of all round cautious hope

Unit -8

Profits

Q.1 What is Profit?

Ans.: The payment received by the entrepreneurs for helping in the production is called profit.

- Profit is not at all definite & pre-determined.
- Some time negative reward.
- Rent for the ability of entrepreneur – **Francis L. Walker**
- Entrepreneur wages – **Taussing & Davenport**
- Reward for taking risk – **Hawley**
- Reward for bearing uninsurable risk or uncertainties – **H. F. Knight**
- Capitalist does not pay fully for the work of laborers and keep a large part of it for himself. – **Karl Marks**
- Profit may be considered a reward for making innovations a reward for accepting risk & uncertainties and market imperfection. – **Henry Graon**

Characteristics of Profit :

(1) Profit is a residual income.

(2) Uncertain & indeterminate.

(3) Higher the risk, higher the reward

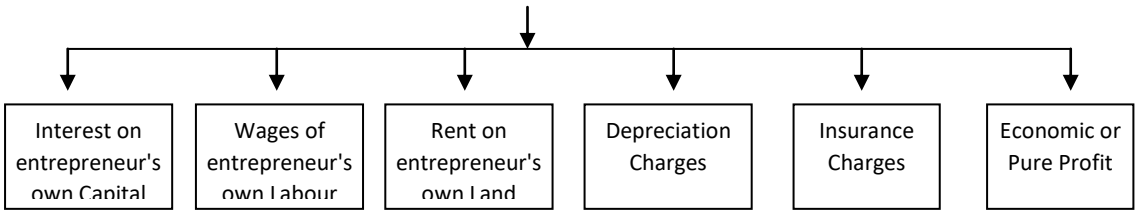
(4) Can be positive / negative /zero.

(5) Dynamic fluctuation

Gross Profit (GP) :

Gross Profit = Total Revenue – Explicit Cost

Gross or Business Profit

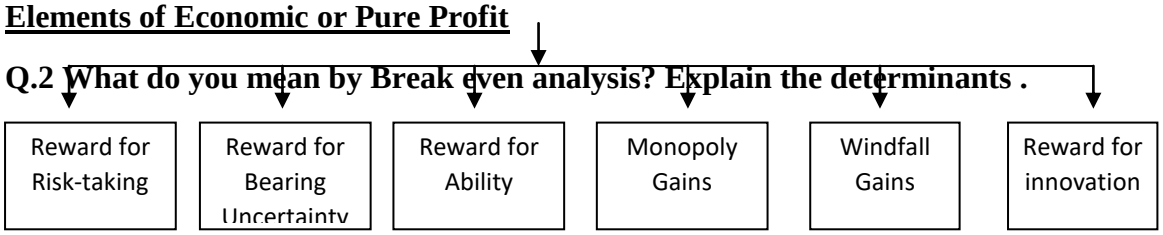


Economic or Pure Profit :

Economic Profit = Total Revenue – Explicit Cost – Implicit Cost

Economic Profit = Total Revenue – Direct Cost – Indirect Cost

Elements of Economic or Pure Profit



Q.2 What do you mean by Break even analysis? Explain the determinants .

Ans: A break-even analysis is a financial calculation that weighs the costs of a new business, service or product against the unit sell price to determine the point at which you will break even. The analysis seeks to identify how much in sales will be required to cover all fixed costs so that the business can begin generating a profit.

Determinants of break even analysis: There are five components of Break Even Analysis. They are: fixed costs, variable costs, revenue, the contribution margin and the break-even point. Fixed costs entail expenses that do not vary with changes in the level of production or sales. However, variable costs do change with the level of production or sales.

Revenue represents total income generated from the sale of goods or services by an individual or business. The contribution margin is the difference between revenue and variable costs. The final component of break-even analysis, the break-even point, is the level of sales where total revenue equals total costs. At this point no profit is made and no loss is incurred.

Q.3 What are the different assumptions and limitations of break-even analysis?

Ans: **Assumptions:**

- The total costs may be classified into fixed and variable costs. It ignores semi-variable cost.
- The cost and revenue functions remain linear.
- The price of the product is assumed to be constant.
- The volume of sales and volume of production are equal.
- The fixed costs remain constant over the volume under consideration.
- It assumes constant rate of increase in variable cost.
- It assumes constant technology and no improvement in labour efficiency.
- The price of the product is assumed to be constant.
- The factor price remains unaltered.
- Changes in input prices are ruled out.
- In the case of multi-product firm, the product mix is stable.

Limitations:

- . In the break-even analysis, we keep everything constant. The selling price is assumed to be constant and the cost function is linear. In practice, it will not be so.
- In the break-even analysis since we keep the function constant, we project the future with the help of past functions. This is not correct.
- The assumption that the cost-revenue-output relationship is linear is true only over a small range of output. It is not an effective tool for long-range use.
- Profits are a function of not only output, but also of other factors like technological change, improvement in the art of management, etc., which have been overlooked in this analysis.
- When break-even analysis is based on accounting data, as it usually happens, it may suffer from various limitations of such data as neglect of imputed costs, arbitrary depreciation estimates and inappropriate allocation of overheads. It can be sound and useful only if the firm in question maintains a good accounting system.

- Selling costs are specially difficult to handle break-even analysis. This is because changes in selling costs are a cause and not a result of changes in output and sales.
- The simple form of a break-even chart makes no provisions for taxes, particularly corporate income tax.
- It usually assumes that the price of the output is given . In other words, it assumes a horizontal demand curve that is realistic under the conditions of perfect competition.
- Matching cost with output imposes another limitation on break-even analysis. Cost in a particular period need not be the result of the output in that period.
- Because of so many restrictive assumptions underlying the technique, computation of a breakeven point is considered an approximation rather than a reality.

Q.4. Why break even analysis is important for Businesses? Explain the uses.

Ans:

- **Planning in New Businesses :** New businesses have a lot to plan before they introduce a facility and start manufacturing goods for sale. To ensure the plans regarding cost and pricing of goods are done right, break even analysis is a necessity. One will be able to analyze and state if the new business idea is productive or not.
- **Introduction of New Products:** For cases, a company wishes to introduce the production of new products in its business unit; the study of break-evens can emerge very significant. Before they start producing the goods, analyzing break-even will help them understand the cost and pricing strategy.
- **Business Model Modification:** Change in a business model may have an impact on your businesses productivity. The change of model doesn't necessarily mean it will affect the costs and expenses, but if that's the case, it will help you change your selling price accordingly. Hence, analyzing break-even in this scenario is both feasible and important.
- **Determines the Size of Units to be Sold:** Break-even analysis helps a company in determining the number of units that needs to be sold in order to cover the cost. Variable cost and selling price of an individual product along with the total cost, are required to evaluate the break-even analysis.
- **Budgeting and Setting Targets:** It allows a company to set a budget and fix a goal and work accordingly since the owner knows at which point their company can break even. It also helps the company in setting an achievable target.
- **Organizing the Margin of Safety:** In times of a financial breakdown, when the company is not performing well, it helps in deciding the minimum number of sales the company requires to make a profit. With the margin of safety reports, the management of the company can take its business decisions accordingly.
- **Monitors and Controls Cost:** The fixed and variable cost of a product can affect the profit margins of a company. Therefore, the break-even analysis can help the management detect if any effects are changing the cost.
- **Helps to Design Pricing Strategy:** If the selling price of a product is increased then the quantity of product to be sold for break-even will be reduced. And like that, if the selling price is reduced, then a company needs to sell extra to break even. So it also helps in designing the pricing strategy of a product.