

BUSINESS ECONOMICS STUDY MATERIAL

UNIT-1

1. Define business economics and explain nature and scope of business economics

(or)

Define business economics and explain its significance.

Introduction:

Business economics is a discipline which deals with the application of economic theory to business management. It deals with the use of economic concepts and principles of business decision making. Formerly it was known as “Business Economics” but the term has now been discarded in favour of Business Economics.

Business Economics may be defined as the study of economic theories, logic and methodology which are generally applied to seek solution to the practical problems of business. Business Economics is thus constituted of that part of economic knowledge or economic theories which is used as a tool of analysing business problems for rational business decisions. Business Economics is often called as Business Economics or Economic for Firms.

Definition of Business Economics:

1. “Business Economics is economics applied in decision making. It is a special branch of economics bridging the gap between abstract theory and Business practice.” – *Haynes, Mote and Paul*.
2. “Business Economics consists of the use of economic modes of thought to analyse business situations.” – *Mc Nair and Meriam*
3. “Business Economics (Business Economics) is the integration of economic theory with business practice for the purpose of facilitating decision making and forward planning by management.” – *Spencer and Seegelman*.
4. “Business economics is concerned with application of economic concepts and economic analysis to the problems of formulating rational Business decision.” – *Mansfield*

Nature of Business Economics :

Traditional economic theory has developed along two lines; viz., normative and positive. Normative focuses on prescriptive statements, and help establish rules aimed at attaining the specified goals of business. Positive, on the other hand, focuses on description it aims at describing the manner in which the economic system operates without staffing how they should operate.

The emphasis in business economics is on normative theory. Business economic seeks to establish rules which help business firms attain their goals, which indeed is also the essence of the word normative. However, if the firms are to establish valid decision rules, they must thoroughly understand their environment. This requires the study of positive or descriptive theory. Thus, Business economics combines the essentials of the normative and positive economic theory, the emphasis being more on the former than the latter.

Scope of Business Economics:

As regards the scope of business economics, no uniformity of views exists among various authors. However, the following aspects are said to generally fall under business economics.

1. Demand Analysis and Forecasting
2. Cost and production Analysis.
3. Pricing Decisions, policies and practices.
4. Profit Management.
5. Capital Management.

These various aspects are also considered to be comprising the subject matter of business economic.

1. Demand Analysis and Forecasting:

A business firm is an economic organization which transforms productive resources into goods to be sold in the market. A major part of business decision making depends on accurate estimates of demand. A demand forecast can serve as a guide to management for maintaining and strengthening market position and enlarging profits. Demands analysis helps identify the various factors influencing the product demand and thus provides guidelines for manipulating demand.

Demand analysis and forecasting provided the essential basis for business planning and occupies a strategic place in managerial economic. The main topics covered are: Demand Determinants, Demand Distinctions and Demand Forecasting.

2. Cost and Production Analysis:

A study of economic costs, combined with the data drawn from the firm's accounting records, can yield significant cost estimates which are useful for management decisions. An element of cost uncertainty exists because all the factors determining costs are not known and controllable. Discovering economic costs and the ability to measure them are the necessary steps for more effective profit planning, cost control and sound pricing practices.

Production analysis is narrower, in scope than cost analysis. Production analysis frequently proceeds in physical terms while cost analysis proceeds in monetary terms. The main topics covered under cost and production analysis are: Cost concepts and classification, Cost-output Relationships, Economics and Diseconomies of scale, Production function and Cost control.

1. Pricing Decisions, Policies and Practices:

Pricing is an important area of business economic. In fact, price is the genesis of a firm's revenue and as such its success largely depends on how correctly the pricing decisions are taken. The important aspects dealt with under pricing include. Price Determination in Various Market Forms, Pricing Method, Differential Pricing, Product-line Pricing and Price Forecasting.

4. Profit Management:

Business firms are generally organized for purpose of making profits and in the long run profits earned are taken as an important measure of the firm's success. If knowledge about the future were perfect, profit analysis would have been a very easy task. However, in a world of uncertainty, expectations are not always realized so that profit planning and measurement constitute a difficult area of business economic. The important aspects covered under this area are: Nature and Measurement of profit, Profit policies and Technique of Profit Planning like Break-Even Analysis.

5. Capital Management:

Among the various types business problems, the most complex and troublesome for the business manager are those relating to a firm's capital investments. Relatively large sums are involved and the problems are so complex that their solution requires considerable time and labour. Often the decision involving capital management is taken by the top management. Briefly Capital management implies planning and control of capital expenditure. The main topics dealt with are: Cost of capital Rate of Return and Selection of Projects.

The significance of business economics can be discussed as under:

1. Business economic is concerned with those aspects of traditional economics which are relevant for business decision making in real life. These are adapted or modified with a view to enable the manager take better decisions. Thus, business economic accomplishes the objective of building a suitable tool kit from traditional economics.

2. It also incorporates useful ideas from other disciplines such as psychology, sociology, etc. If they are found relevant to decision making. In fact, business economics takes the help of other disciplines having a bearing on the business decisions in relation various explicit and implicit constraints subject to which resource allocation is to be optimized.

3. Business economics helps in reaching a variety of business decisions in a complicated environment. Certain examples are:

1. What products and services should be produced?
2. What input and production technique should be used?
3. How much output should be produced and at what prices it should be sold?
4. What are the best sizes and locations of new plants?
5. When should equipment be replaced?
6. How should the available capital be allocated?

4. Business economics makes a manager a more competent model builder. It helps him appreciate the essential relationship Characterizing a given situation.

5. At the level of the firm. Where its operations are conducted though known focus functional areas, such as finance, marketing, personnel and production, business economics serves as an integrating agent by coordinating the activities in these different areas.

6. Business economics takes cognizance of the interaction between the firm and society, and accomplishes the key role of an agent in achieving the social and economic welfare goals. It has come to be realized that a business, apart from its obligations to shareholders, has certain social obligations. Business economics focuses attention on these social obligations as constraints subject to which business decisions are taken. It serves as an instrument in furthering the economic welfare of the society through socially oriented business decisions.

Conclusion:

The usefulness of business economics lies in borrowing and adopting the toolkit from economic theory, incorporating relevant ideas from other disciplines to take better business decisions, serving as a catalytic agent in the process of decision making by different functional departments at the firm's level, and finally accomplishing a social purpose by orienting business decisions towards social obligations.

Q.2. Define micro and macro economics and explain interdependence and differences between micro and macro economics.

(Or)

Define micro and macro economics. State the dependence of micro economics on macro economics and dependence of macro on micro economics.

Introduction:

Economics is broadly divided into two different categories namely microeconomics and macroeconomics. Microeconomics is the study of specific segments and markets of an economy. It looks at the issues like consumer behavior, individual labor market, and theory of firms. On the other hand, macroeconomics is the study of the whole economy. It looks at the aggregate variables such as aggregate demand, national output, and inflation. Read the article below to know more about the difference between Microeconomics and Macroeconomics with examples.

Microeconomics:

Focuses on the choices made by individual consumers as well as businesses concerning the fluctuating cost of goods and services in an economy. Microeconomics covers several aspects, such as –

1. Supply and demand for goods in different marketplaces.
2. Consumer behaviour, as an individual or as a group.
3. Demand for service and labour, including individual labour markets, demand, and determinants like the wage of an employee.

One of the main features of microeconomics is it focuses on casual situations when a marketplace experiences certain changes in the existing conditions. It takes a bottom-up approach to analyse the economy.

Components of Microeconomics:

- Market demand and supply (For example Textile)
- Consumer Behavior (for example Consumer Choice Theory)
- Producers are driven by individual preferences
- .Market-specific labor markets (For example demand labor wage determination in specific markets).

Macroeconomics:

Macroeconomics studies the economic progress and steps taken by a nation. It also includes the study of policies and other influencing factors that affect the economy as a whole. Macroeconomics follows a top-down approach, and involves strategies like –

- The overall economic growth of a country.
- Reasons that are likely to influence unemployment and inflation.
- Fiscal policies are likely to influence factors like interest rates
- .Effect of globalization and international trade.
- Reasons that affect varying economic growths among countries.

Another feature of macroeconomics is that it focuses on aggregated growth and its economic correlation.

Different Components of Macroeconomics:

The different components of macroeconomics include:

- National Output
- Unemployment
- Inflation

How do Microeconomics and Macroeconomics Interdependent on Each Other?

The two parts of Economics i.e. microeconomic and macroeconomics are not interrelated but are mutually exclusive. A close connection exists between the two terms. All microeconomic studies can analyze the better understanding of micro and macroeconomics variables. Such a study will help in the formulation of economic policies and programs. As we know, changes and processes in the economy are a result of both small and large-scale elements which retain the capacity to affect each other or are directly affected by each other. For example: Although the tax increase is a macroeconomic decision, its impact on firms ' savings is a microeconomics analysis.

Let us understand another example: if we know how the price of any commodity is determined and what is the role of buyer and seller in the price determination then it would help us in analyzing the changes that take place in the general price level for all

commodities in the economy as a whole. A study of determining the price of a commodity and the role of buyers and sellers in this process is known as microeconomics whereas the study of the general price level in economics is a macroeconomic process. Similarly, if we want to determine the performance of an economy we will first have to find out the performance of each sector of the economy, and to find out the performance of each sector of the economy we have to find out the performance of each sector individually or in groups. A study of each sector of a production unit or each group is a microeconomics study whereas the study of all the production units of all the sectors is a macroeconomics study. Hence, microeconomics and macroeconomics are two interrelated parts of economics. Therefore, the study of both terms is important in economics.

The interdependence of microeconomics and macroeconomics

Microeconomics is the study of individual parts of the economy whereas macroeconomics is the study of the economy as a whole. But, it is quite wrong to think that these two approaches are separate, different, and unconnected to each other. In fact, neither approach is complete without the other, though economists might emphasize one or the other of the analysis according to their convenience. The two approaches are not competitive but complementary to each other.

“ Strictly speaking, there is only one 'economics'. The macroeconomic theory has a foundation in microeconomic theory and microeconomic theory has a foundation in macroeconomic theory. -
Edward Shapiro ”

From the above opinion of Edward Shapiro, it is clear that micro and macroeconomics are interdependent with each other and one cannot exist in absence of another. The interdependence of micro and macroeconomics can be explained by the help of the following headings:

Dependence of microeconomics on macroeconomics

Macroeconomics is the study of economic activities related to individuals such as the output of a firm, price of a commodity, individual demand or consumption, determination of wages, etc. but these microeconomics activities are dependent on macroeconomics. The dependence of microeconomic can be explained as follows:

1. Determination of consumption:

Consumption is the subject matter of microeconomics because it is an individual economic activity. Consumption of an individual depends upon the consumption of goods and services by the society in a particular place. Hence, microeconomics is dependent on macroeconomics.

2. Determination of product price:

The determination of the price of a commodity depends upon the general price level in the economy. The determination of the general price level is the subject matter of macroeconomics whereas the determination of individual price is the subject matter of microeconomics. Hence, microeconomic is dependent upon macroeconomic.

3. Determination of wage rate:

The determination of the wage rate of labor is the subject matter of microeconomics. It is affected by the wage rate of all labor of the economy. Thus, in the determination of the wage rate of labor, microeconomics is dependent upon macroeconomics.

4. Determination of profit:

The determination of profit is studied under microeconomics. But it is dependent on macroeconomics variables like employment level, aggregate demand, national income, general price level, etc. hence, in the determination of profit microeconomics is dependent upon macroeconomics.

5. Determination of interest rate:

Interest rate is the subject matter of microeconomics but it is determined by the interaction between macroeconomics variables like demand for and supply of money. Hence, microeconomics is dependent upon macroeconomics.

Dependence of macroeconomic on microeconomics

Macroeconomics is the study of activities related to aggregate such as national income, total output, general price level, etc. but these macroeconomics variables are the total sum of microeconomic variables. Therefore, macroeconomics is dependent upon microeconomics. The dependence of macroeconomics on microeconomics can be explained as follows:

1. Determination of national income:

National income is the subject matter of macroeconomics but national income is calculated by the total sum of individual incomes. The study of individual income is the subject matter of microeconomics. Thus, macroeconomics is dependent upon microeconomics.

2. Determination of price level:

The determination of price level is a subject matter of macroeconomics but it is the average of all prices of individual goods and services. Thus, macroeconomics is dependent upon microeconomics.

3. Determination of employment level:

The determination of the level of employment is studied under macroeconomics but to find out the level of employment in an economy, the employment provided by each and every firm has to be studied. Thus, the study of microeconomics is necessary for the determination level of employment.

4. Determination of investment:

Investment theory is the subject matter of macroeconomics but the investment is determined by the rate of interest expected rate of profit. The rate of interest and profit are studied under microeconomics. Thus, macroeconomics is dependent upon microeconomics.

5. Study of total saving:

The total saving of an economy depends upon the saving of different sectors, i.e., total saving is the sum of personal savings, business saving, and government saving. The saving in different sectors of the economy is studied under the microeconomics. Thus, macroeconomics is dependent upon microeconomics.

Thus, we cannot attain a complete understanding of the economic system unless we integrate the two approaches in a wise manner. Ignoring one and concentrating attention on the other alone way often leads not only to inadequate or wrong explanation but also to inappropriate or even disastrous remedial measures. It is clear from the following opinion of prof. Samuelson.

Difference between Microeconomics and Macroeconomics

S.No	Microeconomics	Macroeconomics
1.	Microeconomics studies individual economic units	Macroeconomics studies a nation's economy, as well as its various aggregates.
2.	Microeconomics primarily deals with individual income, output, price of goods, etc.	Macroeconomics is the study of aggregates such as national output, income, as well as general price levels.
3.	Microeconomics focuses on overcoming issues concerning the allocation of resources and price discrimination.	Macroeconomics focuses on upholding issues like employment and national household income.
4.	Microeconomics accounts for factors like the demand and supply of a particular commodity.	Macroeconomics account for the aggregate demand and supply of a nation's economy.

5.	Microeconomics offers a picture of the goods and services that are required for an efficient economy. It also shows the goods and services that might grow in demand in the future.	Macroeconomics helps ensure optimum utilization of the resources available to a country.
6.	Microeconomics helps to point out how equilibrium can be achieved at a small scale.	Macroeconomics help determine the equilibrium levels of employment and income of the nation.
7.	Microeconomics also focuses on issues arising due to price variation and income levels.	The primary component of macroeconomic problems is income.

Conclusion:

Although there are some dissimilarities between Micro economics and Macroeconomics, both are important and need to be understood to get a comprehensive knowledge of economics. To understand the domestic economy is important but at the same time it is also important to understand the household economy and the economy as a whole as it helps to set a nation's economic policy.

Short answer questions:

Q.1. Merits of deductive method.

(1) **Real:** It is the method of “intellectual experiment,” according to Boulding. Since the actual world is very complicated, “what we do is to postulate in our own minds economic systems which are simpler than reality but more easy to grasp. We then work out the relationship in these simplified systems and by introducing more and more complete assumptions, finally work up to the consideration of reality itself.” Thus, this method is nearer to reality.

(2) **Simple:** The deductive method is simple because it is analytical. It involves abstraction and simplifies a complex problem by dividing it into component parts. Further, the hypothetical conditions are so chosen as to make the problem very simple, and then inferences are deduced from them.

(3) Powerful: It is a powerful method of analysis for deducing conclusions from certain facts. As pointed out by Cairnes, The method of deduction is incomparably, when conducted under proper checks, the most powerful instrument of discovery ever wielded by human intelligence.

(4) Exact: The use of statistics, mathematics and econometrics in deduction brings exactness and clarity in economic analysis. The mathematically trained economist is able to deduce inferences in a short time and make analogies with other generalisations and theories. Further, the use of the mathematical-deductive method helps in revealing inconsistencies in economic analysis.

(5) Indispensable: The use of deductive method is indispensable in sciences like economics where experimentation is not possible. As pointed out by Gide and Rist, “In a science like political economy, where experiment is practically impossible, abstraction and analysis afford the only means of escape from those other influences which complicate the problem so much.”

(6) Universal: The deductive method helps in drawing inferences which are of universal validity because they are based on general principles, such as the law of diminishing returns.

Q.2. Merits of inductive method.

Merits of Inductive Method:

The chief merits of this method are as follows:

(1) Realistic: The inductive method is realistic because it is based on facts and explains them as they actually are. It is concrete and synthetic because it deals with the subject as a whole and does not divide it into component parts artificially

(2) Future Enquiries: Induction helps in future enquiries. By discovering and providing general principles, induction helps future investigations. Once a generalisation is established, it becomes the starting point of future enquiries.

(3) Statistical Method: The inductive method makes use of the statistical method. This has made significant improvements in the application of induction for analysing economic problems of wide range. In particular, the collection of data by governmental and private agencies or macro variables, like national income, general prices, consumption, saving,

total employment, etc., has increased the value of this method and helped governments to formulate economic policies pertaining to the removal of poverty, inequalities, underdevelopment, etc.

(4) Dynamic: The inductive method is dynamic. In this, changing economic phenomena can be analysed on the basis of experiences, conclusions can be drawn, and appropriate remedial measures can be taken. Thus, induction suggests new problems to pure theory for their solution from time to time.

(5) Historico-Relative: A generalisation drawn under the inductive method is often historico-relative in economics. Since it is drawn from a particular historical situation, it cannot be applied to all situations unless they are exactly similar. For instance, India and America differ in their factor endowments. Therefore, it would be wrong to apply the industrial policy which was followed in America in the late nineteenth century to present day India. Thus, the inductive method has the merit of applying generalisations only to related situations or phenomena.

Q.3. Deductive and Inductive methods

The Deductive Method:

Deduction Means reasoning or inference from the general to the particular or from the universal to the individual. The deductive method derives new conclusions from fundamental assumptions or from truth established by other methods. It involves the process of reasoning from certain laws or principles, which are assumed to be true, to the analysis of facts.

Then inferences are drawn which are verified against observed facts. Bacon described deduction as a “descending process” in which we proceed from a general principle to its consequences. Mill characterised it as a priori method, while others called it abstract and analytical.

Deduction involves four steps: (1) Selecting the problem. (2) The formulation of assumptions on the basis of which the problem is to be explored. (3) The formulation of hypothesis through the process of logical reasoning whereby inferences are drawn. (4) Verifying the hypothesis. These steps are discussed as under.

The Inductive Method:

Induction “is the process of reasoning from a part to the whole, from particulars to generals or from the individual to the universal.” Bacon described it as “an ascending process” in which facts are collected, arranged and then general conclusions are drawn.

The inductive method was employed in economics by the German Historical School which sought to develop economics wholly from historical research. The historical or inductive method expects the economist to be primarily an economic historian who should first collect material, draw generalisations, and verify the conclusions by applying them to subsequent events. For this, it uses statistical methods. The Engel’s Law of Family Expenditure and the Malthusian Theory of Population have been derived from inductive reasoning.

The inductive method involves the following steps:

- 1. The Problem:** In order to arrive at a generalisation concerning an economic phenomenon, the problem should be properly selected and clearly stated.
- 2. Data:** The second step is the collection, enumeration, classification and analysis of data by using appropriate statistical techniques.
- 3. Observation:** Data are used to make observation about particular facts concerning the problem.
- 4. Generalisation:** On the basis of observation, generalisation is logically derived which establishes a general truth from particular facts. Thus induction is the process in which we arrive at a generalisation on the basis of particular observed facts.

The best example of inductive reasoning in economics is the formulation of the generalisation of diminishing returns. When a Scottish farmer found that in the cultivation of his field an increase in the amount of labour and capital spent on it was bringing in less than proportionate returns year after year, an economist observed such instances in the case of a number of other farms, and then he arrived at the generalisation that is known as the Law of Diminishing Returns.

Q.4. Demerits of deductive method.

Despite these merits, much criticism has been levelled against this method by the Historical School which flourished in Germany.

1 .Unrealistic Assumption:

Every hypothesis is based on a set of assumptions. When a hypothesis is tested, assumptions are indirectly tested by comparing their implications with facts. But when facts refute the theory based on the tested hypothesis, the assumptions are also indirectly refuted. So deduction depends upon the nature of assumptions. If they are unrealistic, in this method, economists use the ceteris paribus assumption. But other things seldom r

2. Not Universally Applicable:

Often the conclusions derived from deductive reasoning are not applicable universally because the premises from which they are deduced may not hold good at all time and places. For instance, the classicists assumed in their reasoning that particular conditions prevailing in England of their times were valid universally. This supposition was wrong. Prof. Lerner, therefore, points out that the deductive method is simply “armchair analysis” which cannot be regarded as universal.

3. Incorrect Verification:

The verification of theories, generalisations or laws in economics is based on observation. And right observation depends upon data which must be correct and adequate. If a hypothesis is deduced from wrong or inadequate data, the theory will not correspond with facts and will be refuted. For instance, the generalisations of the classicists were based on inadequate data and their theories were refuted. As pointed out by ircholson, “the great danger of the deductive method lies in the natural aversion to the labour of verification.”

4. Abstract Method:

The deductive method is highly abstract and requires great skill in drawing inferences for various premises. Due to the complexity of certain economic problems, it becomes difficult to apply this method even at the hands of an expert researcher. More so, when he uses mathematics or econometrics.

5. Static Method:

This method of analysis is based on the assumption that economic conditions remain constant. But economic conditions are continuously changing. Thus this is a static method which fails to make correct analysis.

6. Intellectually:

The chief defect of the deductive method “lies in the fact that those who follow this method may be absorbed in the framing of intellectual toys and the real world may be forgotten in the intellectual gymnastics and mathematical treatment.”

Q.5. Demerits of inductive method

However, the inductive method is not without its weaknesses which are discussed below.

(1) Misinterpretation of Data:

Induction relies on statistical numbers for analysis that “can be misused and misinterpreted when the assumptions which are required for their use are forgotten.”

(2) Uncertain Conclusions:

Boulding points out that “statistical information can only give us propositions whose truth is more or less probable it can never give us certainty.”

(3) Lacks Concreteness:

Definitions, sources and methods used in statistical analysis differ from investigator to investigator even for the same problem, as for instance in the case of national income accounts. Thus, statistical techniques lack concreteness.

(4) Costly Method:

The inductive method is not only time-consuming but also costly. It involves detailed and painstaking processes of collection, classification, analyses and interpretation of data on the part of trained and expert investigators and analysts

(5) Difficult to Prove Hypothesis:

Again the use of statistics in induction cannot prove a hypothesis. It can only show that the hypothesis is not inconsistent with the known facts. In reality, collection of data is not illuminating unless it is related to a hypothesis.

(6) Controlled Experimentation not Possible in Economics:

Besides the statistical method, the other method used in induction is of controlled experimentation. This method is extremely useful in natural and physical sciences which deal with matter. But unlike the natural sciences, there is little scope for experimentation in economics because economics deals with human behaviour which differs from person to person and from place to place.

Q.6. Importance of business economics.

1. Business economic is concerned with those aspects of traditional economics which are relevant for business decision making in real life. These are adapted or modified with a view to enable the manager take better decisions. Thus, business economic accomplishes the objective of building a suitable tool kit from traditional economics.
2. It also incorporates useful ideas from other disciplines such as psychology, sociology, etc. If they are found relevant to decision making. In fact, business economics takes the help of other disciplines having a bearing on the business decisions in relation various explicit and implicit constraints subject to which resource allocation is to be optimized.
3. Business economics helps in reaching a variety of business decisions in a complicated environment. Certain examples are :
 - (i) What products and services should be produced?
 - (ii) What input and production technique should be used?
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4. Business economics makes a manager a more competent model builder. It helps him appreciate the essential relationship Characterising a given situation.
5. At the level of the firm. Where its operations are conducted though known focus functional areas, such as finance, marketing, personnel and production, business economics serves as an integrating agent by coordinating the activities in these different areas.

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UNIT-2

Q3. Explain Law of Demand with suitable diagram and state the exceptions to law of demand.

MEANING OF DEMAND:

The demand in economics means the desires to purchase the commodity backed by willingness and the ability to pay for it.

Demand= Desire + Willingness to buy + Ability to pay

LAW OF DEMAND:

The law of demand was propounded by the famous economist Alfred Marshall in early 1892. Due to the general observation of law, economists have come to accept the validity of the law under most situations. The law of demand states that other things being equal the relationship between the price and the quantity demanded of a commodity are inversely related to each other. In other words, when the price of a commodity rises the quantity demanded for the commodity falls. The law of demand helps to explain the consumer's choice behaviour due to change in the price of a commodity.

Assumptions:

The law of demand is based on the following assumptions:

- 1. No change in consumers income:** There should not be any change in the consumer income while operating under the law of demand. If income of a consumer increases the consumer may buy more goods at the same price or buy the same quantity even if price increases. The income is assumed to be constant, as it may lead to enticement to the consumer to buy more goods and raise the demand for a commodity despite an increase in the price of commodity.
- 2. No change in the price of other goods:** The price of substitute goods and complementary good should remain the same. If any of the price changes may lead to change in the demand for the other commodity and it will change the consumer preference will affect the law of demand.
- 3. No change in taste and preference:** The law assumes that the consumer's taste and preference for a commodity remains the same. If there is a change in consumer's taste and preferences there will be a change in the demand for the commodity.

4. **No expectation of change in the future price:** The law of demand remains valid if there is no change in future expectation about price of commodities. If consumer is expecting rise in price in future, he will buy more quantities even at a higher price in present time and vice-versa.
5. **No change in the size and composition of population:** The law also assumes that the size and composition of the total population of a country should not change. That means, the population must neither increase nor decrease. Because rise in the populations would increase the demand for commodities. Along with the size of population, composition of population also matters. If number of senior citizens is more then the demand for medical care will be more. If female population is more then the demand for cosmetics will be more.
6. **No change in government policies:** The law assumes that there is no change in the government policy which will either increase or decrease the demand for the commodity.

Demand Schedule:

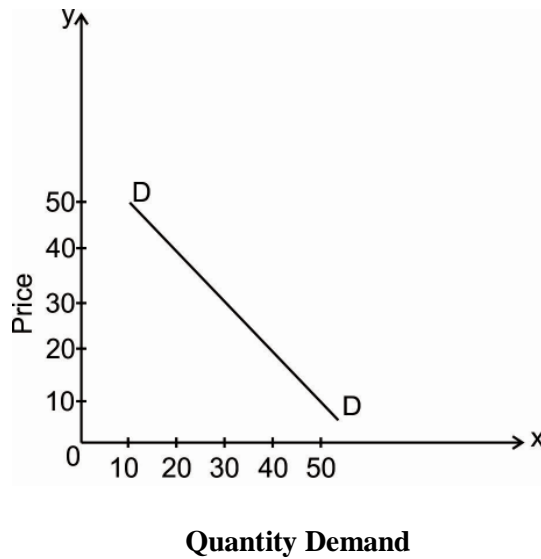
The demand schedule is a tabular representation of the law of demand which is shown below:

Price(₹)	Quantity demanded of a commodity 'X'(Units)
50	10
40	20
30	30
20	40
10	50

Representation of table:

It can be seen from the above table, that when the price of a commodity 'X' is ₹50 per unit, the consumer purchases 10 units of the commodity. Further when the price of the commodity falls to 40, he purchases 20 units of commodity. Similarly, when the price falls further the quantity demanded by the consumer goes on increasing by 30 units as so on. This demand schedule shows the inverse relationship between the price and quantity demanded of a commodity.

Demand curve:



The demand schedule can also be explained through demand curve in a simpler way. The demand curve is a graphical representation of the quantities of good demanded by the consumer at various possible price in a period of time. The Diagrams shows quantity demanded on X-axis and the price of a commodity on Y-axis. If the demand schedule is plotted on the demand curve, we get the various price-quantity combination points and if we join these points, we get the downward sloping demand curve. Thus, the downward sloping demand curve according to law of demand shows, the inverse relationship between price and quantity demanded.

EXCEPTIONS TO LAW OF DEMAND

Definition: There are certain situations where the law of demand does not apply or becomes ineffective, i.e. with a fall in the price the demand falls and with the rise in price the demand rises are called as the exceptions to the law of demand.



1. **Giffen Goods:** Giffen goods are the inferior goods whose demand increases with the increase in its prices. There are several inferior commodities, much cheaper than the superior substitutes often consumed by the poor households as an essential commodity. Whenever the price of the Giffen goods increases its quantity demanded also increases because, with an increase in the price, and the income remaining the same, the poor people cut the consumption of superior substitute and buy more quantities of Giffen goods to meet their basic needs.

For Example, Suppose the minimum monthly consumption of food grains by a poor household is 20 Kg Bajra (Inferior good) and 10 Kg Rice (superior good). The selling price of Bajra is Rs 5 per kg, and the rice is Rs 10 per kg, and the household spends its total income of Rs 200 on the purchase of these items. Suppose, the price of Bajra rose to Rs 6 per kg then the household will be forced to reduce the consumption of rice by 5 Kg and increase the quantity of Bajra to 25 Kg in order to meet the minimum monthly requirement of food grains of 30 kg.

2. **Veblen Goods:** Another exception to the law of demand is given by the economist Thorstein Veblen, who proposed the concept of “**Conspicuous Consumption.**” According to Veblen, there are a certain group of people who measure the utility of the commodity purely by its price, which means, they think that higher priced goods and services derive more utility than the lesser priced commodities.

For example, goods like a diamond, platinum, ruby, etc. are bought by the upper echelons of the society (rich class) for whom the higher the price of these goods, the higher is the prestige value and ultimately the higher is the utility or desirability of them.

3. **Expectation of Price Change in Future:**
 - a. When the consumer expects that the price of a commodity is likely to further increase in the future, then he will buy more of it despite its increased price in order to escape himself from the pinch of much higher price in the future.
 - b. On the other hand, if the consumer expects the price of the commodity to further fall in the future, then he will likely postpone his purchase despite less price of the commodity in order to avail the benefits of much lower prices in the future.

4. **Ignorance:** Often people are misconceived as high-priced commodities are better than the low-priced commodities and rest their purchase decision on such a notion. They buy those commodities whose price is relatively higher than the substitutes.
5. **Emergencies:** During emergencies such as war, natural calamity- flood, drought, earthquake, etc., the law of demand becomes ineffective. In such situations, people often fear the shortage of the essentials and hence demand more goods and services even at higher prices.
6. **Change in fashion and Tastes & Preferences:** The change in fashion trend and tastes and preferences of the consumers negates the effect of law of demand. The consumer tends to buy those commodities which are very much 'in' in the market even at higher prices.
7. **Conspicuous Necessities:** There are certain commodities which have become essentials of the modern life. These are the goods which consumer buys irrespective of an increase in the price. For example TV, refrigerator, automobiles, washing machines, air conditioners, etc.
8. **Bandwagon Effect:** This is the most common type of exception to the law of demand wherein the consumer tries to purchase those commodities which are bought by his friends, relatives or neighbors. Here, the person tries to emulate the buying behaviour and patterns of the group to which he belongs irrespective of the price of the commodity.
9. **For example,** if the majority of group members have smart phones then the consumer will also demand for the Smartphone even if the prices are high. Thus, these are some of the exceptions to the law of demand where the demand curve is upward sloping, i.e. the demand increases with an increase in the price and decreases with the decrease in price.

Q.2. Define demand and explain why demand curve slopes downwards from left to right.

The Law of Demand:

Demand, in economic terms, basically means the desire to purchase something. However, the desire itself is not sufficient. It also requires the willingness and purchasing power of people to acquire the commodity.

According to the law of demand, when other factors are constant, there is an inverse relationship between price and demand. In other words, the demand for something increases as its price falls. Conversely, demand reduces when the price increases.

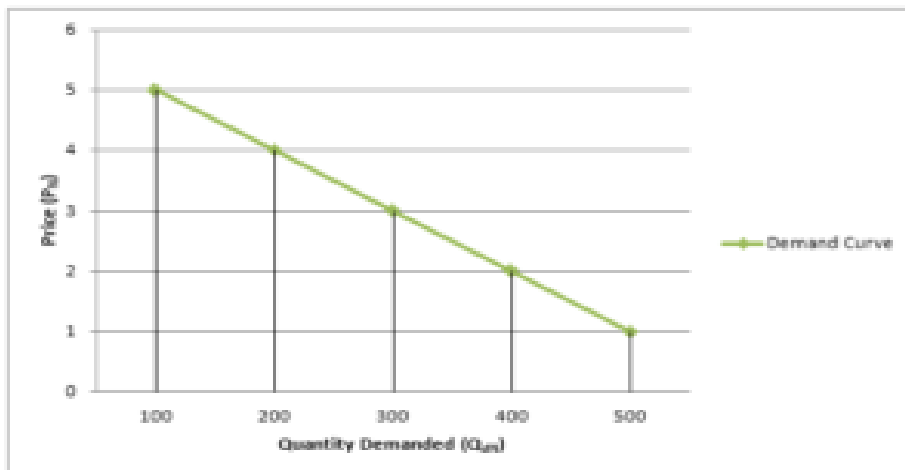
We can understand this inverse relationship using the following individual demand schedule:

Price	Demand
5	100
4	200
3	300
2	400
1	500

This schedule shows the individual demand for a commodity at various market prices. As we can observe, the demand is increasing as the price falls. This is because people will spend less money when prices are high. On the other hand, they will purchase more when prices are low.

Demand Curve

From the demand schedule we have seen above, we can derive the following demand curve:



This graph also shows the demand curve falling as the price reduces. The downward sloping of this curve explains the law of demand. Furthermore, its rightward shift with falling prices indicates increasing demand.

A similar market demand curve showing demands of various commodities of the same kind will also look the same. This indicates that a demand curve is always downward sloping. The extent to which a curve slopes might differ but its downward direction is inevitable.

Such downward sloping of demand curves from left to right explains the law of demand. This happens because of the inverse relationship between price and demand.

Causes for Downward Sloping of Demand Curve:

The following are some of the causes explaining why demand curves always slope downwards:

1) The law of diminishing the marginal utility:

According to this principle, the marginal utility of a commodity reduces when the quantity of goods is more. Consequently, when the quantity is more, the prices will fall and demand will increase. Hence, consumers will demand more goods when prices are less. This is why the demand curve slopes downwards.

2) Substitution effect:

Consumers often classify various commodities as substitutes. For example, many Indian consumers may substitute coffee and tea with each other for various reasons. When the price of coffee rises, consumers may switch to buying tea more as it will become relatively cheaper.

Economists refer to this as the substitution effect. Hence, if the price of tea reduces, its demand will increase and the demand curve will be downward sloping.

3) Income effect:

According to this principle, the real income of people increases when the prices of commodities reduce. This happens because they spend less in case of falling prices and end up with more money. With more money, they will, in turn, purchase more and more. Therefore, the demand increases as prices fall.

4) New buyers:

Whenever the price of a commodity decreases, new buyers enter the market and start purchasing it. This is because they were unable to purchase it when the prices were high but now they can afford it. Thus, as the price falls, the demand rises and the demand curve becomes downward sloping.

5) Old buyers:

This rule is basically a corollary of the new buyers rule. When the price of a commodity decreases, the old buyers can afford to buy even more quantities of it. As a result, this results in demand increasing and the demand curve slopes downwards.

Example on Causes of Downward Sloping:

Read the following statements and mention which cause of downward sloping they refer to.

- (a) Consumers often substitute one commodity for another.
- (b) A commodity's utility always reduces when the supply of goods is more.
- (c) Affordability of goods allows more people to buy them.
- (d) Falling prices result in people retaining more money for other uses.
- (e) Existing customers purchase even more quantities at lower prices.

Short answer questions:

Q.1. Demand function

Demand function is an arithmetic expression that shows the functional relationship between the demand for a commodity and the various factors affecting it. This includes the income of a consumer and the price of a commodity along with other various determining factors affecting demand. The demand for a commodity is the dependent variable, while its determinants factors are the independent variables. The demand for a commodity depends on various factors which determines the quantity of a commodity demanded by various individuals or a group of individuals. The following equations show the demand function which expresses the relationship between the quantity demanded of a commodity X and its determinants.

$$Q_{dx} = f(P_x, Y, P_y, T, A)$$

Where,

Q_{dx} = Quantity demanded of commodity X.

P_x = Price of commodity X.

Y = Income of a consumer.

P_y = Price of related commodities.

T = Taste and Preference of an individual consumer.

A = Advertising expenditure made by producer.

Q. 2. DETERMINANTS OF DEMAND:

- 1) **Price of commodity (P_x):** The price of commodity is very important determinants of demand for any commodity. Other things remaining same, the rise in price of the commodity, the demand for the commodity contracts, and with the fall in price, its demand expands. So, the quantity demanded and price shows an inverse relationship in the case of normal goods. In other word changes in price brings changes in the consumer's demand for that commodity.
- 2) **Income(Y):** Another important determinant of demand for a commodity is consumer's income. Change in consumer's income also influences the change in consumer's demand for a commodities. The demand for normal goods increases with the increasing level of income and viceversa .it shows a direct relationship between income and quantity demanded.
- 3) **Price of related commodities (P_y):** The demand for a commodity is also affected by the price of other commodities, especially of substitute or complementary goods. A good may have some related goods either substitute or complementary. The relation between two maybe different.
- 4) **Substitute Goods:** Substitute Goods are those goods which can be substituted from each other. For Instance Tea & Coffee. When there is either price of Tea causes rise in demand for Coffee because there is no change in price of coffee such goods are called as substitute goods .In other words the relation between two substitute goods are positive. An incase the price of one commodity increase the demand for other.
- 5) **Complementary Goods:** Complementary goods are those goods which one purchased together. For Instance Car & Petrol. When their a rise in price of Petrol leads to fall in demand for Car such goods are called complementary good. In other words, the relation between two complementary goods are negative. An increase in

price of one commodity leads to decrease in demand for other.

- 6) **Taste and Preference (T):** The demand for a commodity also depends on the consumer's taste and preferences such as change in fashion, culture, tradition etc. As the consumers taste and preference for a particular commodity changes the demand for that particular commodity also changes. Therefore, Taste and Preference of a consumer plays an important role.
- 7) **Advertising expenditure (A):** Advertising expenditure by a firm influence the demand for a commodity. The advertisements by the manufacturer and sellers attract more customers towards the commodity There exists positive relationship between advertising expenditure and demand for the commodity.

Q.4. What is elasticity of demand? How could it be measured?

ELASTICITY OF DEMAND

Elasticity of demand helps us to estimate the level of change in demand with respect to a change in any of the determinants of demand. The concept of elasticity of demand helps the firm or manager in decision making with respect to pricing, promotion and production policies. It has a very great importance in economic theory's as well for formulation of suitable economic policy.

Meaning of elasticity:

Elasticity is the measure of the degree of responsiveness of change in one variable to the degree of responsiveness change in another variable.

$$\text{Thus, Elasticity} = \frac{\% \text{change in A}}{\% \text{change in B}}$$

The concept of elasticity of demand therefore refers to the degree of responsiveness of quantity demanded of a good to the change in its price, consumers' income and price of related goods.

PRICE ELASTICITY OF DEMAND:

Price elasticity of demand shows the degree of responsiveness of quantity demanded of a good to the change in its price, other factors such as income, prices of related commodities that determines demand for the commodity which are held constant. In other words, price elasticity of demand is defined as the ratio of the percentage change in quantity demanded of a commodity to a percentage change in price of the commodity.

Thus,

$$\mathbf{Up = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}}}$$

The demand curve for most of the commodities is downward sloping due to the inverse relationship between quantity demanded and price of the commodity, the value of the price elasticity of demand will always be negative. While interpreting the price elasticity of demand the negative sign is ignored or omitted. This is because we are interested in measuring the magnitude of responsiveness of quantity demanded of a good to changes in its prices.

MEASUREMENTS OF PRICE ELASTICITY OF DEMAND

There are various methods of measuring price elasticity of demand some of the important methods are explained below:

A. Percentage method:

This method is associated with the name of Dr Alfred Marshall. This method is known by various names such as Proportionate method, Ratio method, Arithmetic method, and Flux method. The price elasticity of demand in this method is measured by dividing percentage change in quantity demanded by the percentage change in the price. In other it is the ratio of the percentage change in quantity demanded of a commodity by the percentage change in the price of the commodity itself.

Thus,

$$\mathbf{Ep = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}}}$$

$$\text{Symbolically, } E_p = \frac{\Delta q}{q} \div \frac{\Delta p}{p} \\ = \frac{\Delta q}{\Delta p} \times \frac{p}{q}$$

Where, q = original quantity demanded.

P = original price.

Δq = change in quantity demanded.

Δp = change in price.

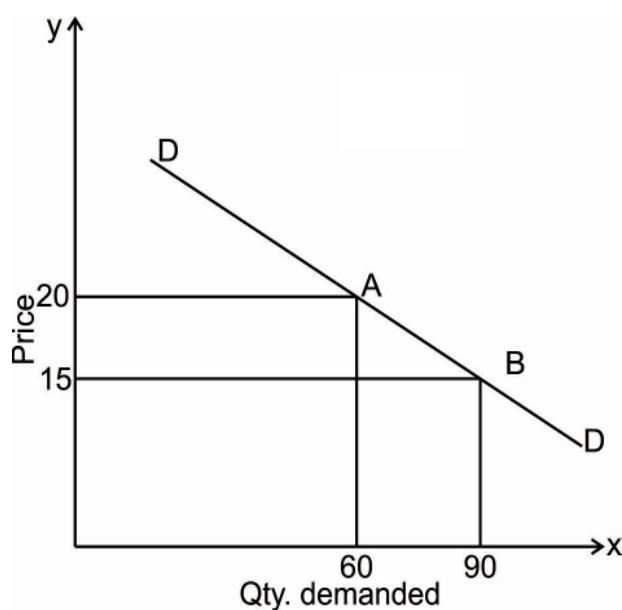
As mentioned above, the price elasticity of demand has a negative sign this is due to inverse relationship between price and quantity demanded. But for simplicity in understanding the magnitude or the degree of responsiveness we ignore the negative sign and take only numerical value of elasticity.

B.Point method: Prof. Marshall devised a geometrical method for measuring the elasticity of demand at a point on the demand curve. In other word, the point elasticity of demand measures the elasticity of demand at the point on the demand curve.

This can be illustrated by the following given example:

Table 3.2

Price of Commodity X	Quantity Demanded of X	Point
20	60	A
15	90	B



The above table is represented in the following Diagram 3.7.

The elasticity is at point A&B

$$\begin{aligned} \text{Elasticity at point A} &= \frac{\Delta q/q}{\Delta p/p} \\ &= \frac{30/60}{-5/20} \\ &= \frac{30}{60} \times \frac{20}{-5} \\ &= -1.10 \end{aligned}$$

$$\begin{aligned} \text{Elasticity at point B} &= \frac{-30/90}{5/5} \\ &= \frac{-30}{90} \times \frac{5}{5} \\ &= -0.33 \end{aligned}$$

Arc elasticity of demand: In the above measure we have studied the measurement of elasticity at a point on a demand curve. When elasticity is measured between two points on the same demand curve, it is known as arc elasticity. According to Prof. Baumol, “Arc elasticity is a measure of the average responsiveness to the change in price exhibited by a demand curve over some finite stretch of the demand curve.” Any two points on the same demand curve make an arc shows the arc elasticity of demand. In other words, arc price elasticity of demand measures elasticity of demand at two points on the demand curve.

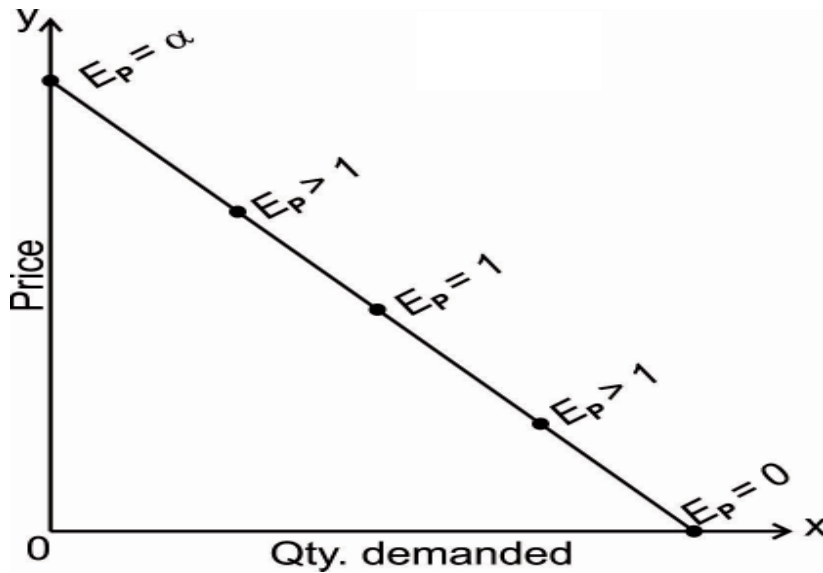
$$E_p = \frac{\Delta q/q_1}{\Delta p/p_2} \div \frac{\Delta p/p_2}{1+p_2}$$

$$\begin{aligned}
&= \frac{q_2 - q_1 \cdot p_2 - p_1}{q_2 + q_1 \quad p_2 + p_1} \\
&= \frac{q_2 - q_1 \cdot p_2 + p_1}{p_2 - p_1 \quad q_2 + q_1} \\
&= \frac{(90 - 60) \times (15 + 20)}{(15 - 20) \times (90 + 60)} \\
&= \frac{30 \cdot 35}{-5150} \\
&= -1.39
\end{aligned}$$

Geometrical measure of elasticity of demand: If there is a linear demand curve the point elasticity of demand is measured by geometrical method i.e. it is the ratio of lower segment of the demand curve below the point to the upper segment of the demand curve above the point on the demand curve.

Symbolically,

$$E_p = \frac{\text{Lower segment of the demand curve below the point}}{\text{Upper segment of the demand curve above the point}}$$



The geometric method can be explained through the Diagram 3.8 given below:

Q.3. Describe the degrees of price elasticity of demand with the help of suitable

diagrams.

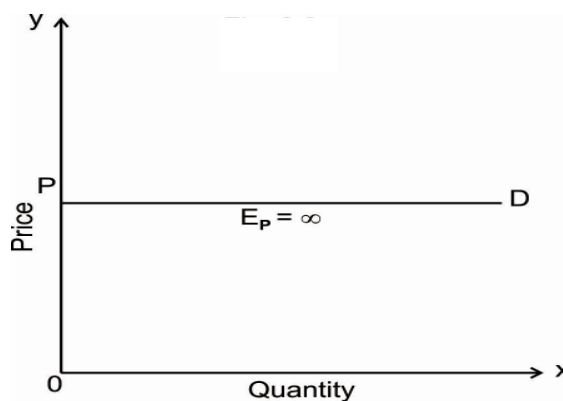
DEGREES OF ELASTICITY OF DEMAND

Different commodities have different elasticities of demand. Some commodities have more elastic demand than others, while other commodities have relative elastic demand. The elasticity of demand ranges from zero to infinity ($0-\infty$). It can be equal to zero, one, less than one, greater than one and equal to unity.

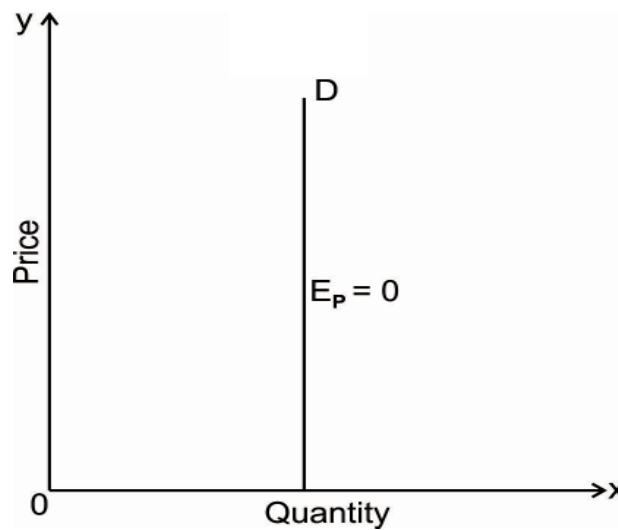
“The degree of responsiveness to the change in demand in a market for a commodity is great or small, as the amount demanded increases much or little for a given fall in price and diminishes much or little for a given rise in price of the commodity”.

The various level or the degree of elasticity of demand is explained in brief below:

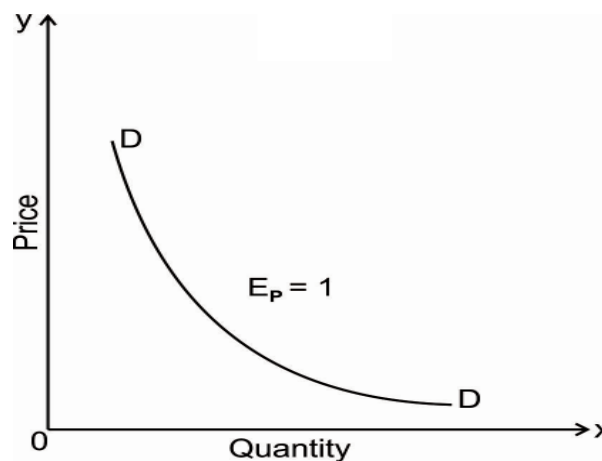
- 1. Perfectly elastic demand ($E_p = \infty$):** The demand is said to be perfectly elastic, if slight change in price leads to infinite change in the quantity demanded of the commodity. In other words, it is the level of responses where the consumer is able to buy all the available commodity at a particular price where the demand is elastic. The demand curve under this situation is horizontal straight line parallel to X axis shown in the Diagram 3.9 below. This type of demand curve is relevant in perfect competition. But in the real world, this case is exceptionally rare and are not of any practical interest.



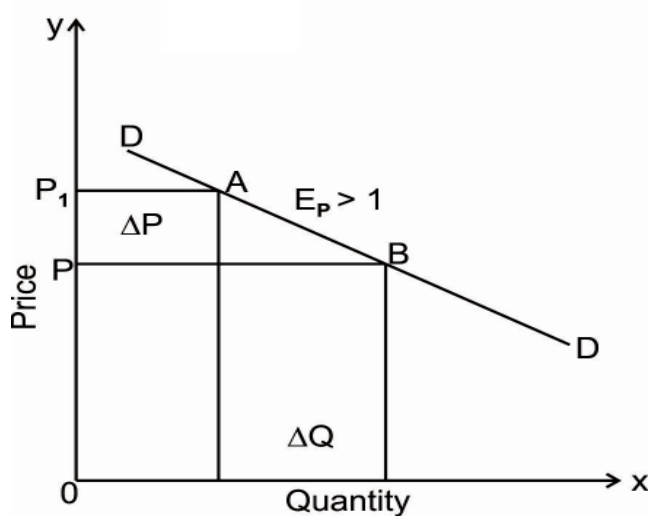
2. Perfectly inelastic demand ($E_p = 0$): The demand is said to be perfectly inelastic, if the demand for a commodity does not change with a change in price of the commodity. In other words, the perfectly inelastic demand of a commodity is opposite to the perfectly elastic demand. Under the perfectly inelastic demand, a rise or fall in price of a commodity the quantity demanded for a commodity remains the same. The elasticity of demand will be equal to zero. The demand curve is vertical straight line parallel to Y-axis shown in the Diagram3.10.



3. Unitary elastic demand ($E_p = 1$): Demand is said to be unitary elastic when the percentage change in the quantity demanded for a commodity is equal to the percentage change in its price. The numerical value of unitary elastic of demand is exactly equal to one i.e. Marshall calls it as unit elastic. The demand curve is rectangular hyperbola shown in the Diagram3.11.



4. **Relatively Elastic demand ($E_p > 1$):** Demand is said to be relatively elastic, when the percentage change in quantity demanded of a commodity is greater than the percentage change in its price. In other words, it refers to a situation in which a small change in price leads to a great change in quantity demanded. The demand curve under this situation is flatter as shown in Diagram 3.12. Such demand curve is seen under monopolistic competition.



5. **Relatively Inelastic demand ($E_p < 1$):** Demand is relatively inelastic when the percentage change in the quantity demanded of a commodity is less than the percentage change in the price of the commodity. The demand curve under this situation is steeper shown in Diagram 3.13. Such demand curve is observed under monopoly market.

Q.3. INCOME ELASTICITY OF DEMAND

As we have discussed earlier the factor which determines elasticity of demand for a commodity. The consumer's income is one of the important determinants of demand for a commodity. The demand for a commodity and consumer's income is directly related to each other, unlike price-demand relationship.

Income elasticity of demand shows the degree of responsiveness of quantity demanded of a commodity to a small change in the income of a consumer. In other words, the degree of responsiveness of quantity demanded to a change in income is measured by dividing the proportionate change in quantity demanded of a commodity by the proportionate change in the income of a consumer.

$$\text{Income Elasticity} = \frac{\text{Percentage change in purchases of a commodity}}{\text{Percentage change in income}}$$

MEASUREMENT OF INCOME ELASTICITY OF DEMAND

The income elasticity of demand can be calculated by either point method or arc method.

Point income elasticity of demand is measured by following.

Formula:

$$E_{\bar{Y}} = \frac{\Delta Q/Q}{\Delta Y/Y}$$

$$= \frac{\Delta Q}{Q} \cdot \frac{Y}{\Delta Y}$$

$$= \frac{\Delta Q}{Q} \cdot \frac{Y}{\Delta Y}$$

Where, Q= Original Quantity Demanded.

Y= Original Income.

ΔQ=Change in Quantity Demanded

ΔY= Change in Income.

Arc income elasticity of demand is measured by following formula:

$$E_{\bar{Y}} = \frac{(Q_2 - Q_1)(Y_2 + Y_1)}{(Y_2 - Y_1)(Q_2 + Q_1)}$$

Income elasticity of demand being zero is a great significance. It implies that a given increase in the income of a consumer does not at all lead to any increase in quantity demanded of a commodity or expenditure on it.

Q.4. CROSS ELASTICITY OF DEMAND

Sometimes we find two goods are inter-related to each other either they are substitute goods or complementary goods. Cross elasticity of demand measures the degree of responsiveness of demand for one good in response to the change in the price of another

good.

$$E_c = \frac{\text{Percentage change in quantity demanded of commodity 'X'}}{\text{Percentage change in the price of commodity 'Y'}}$$

Classification of goods based on value of cross elasticity of demand:

1.Substitution: If the value of elasticity between two goods is positive the goods are said to be substitute to each other. For example, Tea and coffee, if the price of tea increases the demand for coffee increases.

2. Complementary: if the value of elasticity between two good saris negatives the goods are said to be complementary. For example, car and petrol, if the price of petrol increases the demand for car decreases.

3.Unrelated: if the value of elasticity between two goods are zero then the goods are said to be unrelated to each other. For example, table and car, if the price of table increases there is no change in the demand for car.

Q.5. FACTORS AFFECTING PRICE ELASTICITY OF DEMAND:

The price elasticity of demand depends upon number of factors which affects its elasticity. They are as follows:

A. Nature of goods or commodity: The elasticity of demand for a commodity depends upon the nature of the commodity, i.e., whether the commodity is a necessary, comfort or luxury good. The elasticity of demand for a necessary commodity is relatively small. For example, if the price of such a good rise, its buyers generally are not able to reduce its demand as its necessity commodity.

The elasticity of demand for a luxury good is usually high. This is because the consumption of a good, unlike that of a necessary commodity, can be delayed. That is why if the price of such a commodity increase, the demand for the good can be significantly reduced.

B. Availability of Substitute Goods: The price elasticity of demand also depends upon the substitution of goods. If there is a close substitute for a particular commodity in the market, then the demand for such commodity would be relatively more elastic. For example, since tea and coffee are close substitute for each other in the commodity market, a rise in the price of coffee will result in a considerable fall in its demand and a consequent rise in the demand for tea. Therefore, a demand for coffee will be relatively more elastic because of the availability of tea in the market.

C. Alternative and Variety of Uses of the Product: as we know that the resources have an alternative use. The demand for such goods has many uses. The more the alternative and variety of uses of a good, the more would be its elasticity of demand. For example, Electricity is used for many purposes such as lighting, heating, cooking, ironing and also use as a source of power in many industries & households. That is why when the price of electricity increases, its demand will decrease and vice versa.

D. Role of Habits and custom: if the consumer has a habit of something, he will not reduce his consumption even if the price of such commodity increases the demand for them do not decreases considerably and so their elasticity of demand will be inelastic.

Ex; Alcohol, Cigarettes which are injurious for health but people still consumes it because of their habit.

E. Income Level of the consumer: The elasticity of demand differs due to the change in the income level of the households. Elasticity of demand for a commodity is low for higher income level groups then the people with low incomes. This is because rich people are not influenced much by changes in the price of goods. Poor people are highly affected by the increase or decrease in the price of goods. As a result, demand for the lower income group is highly elastic in demand.

F. Postponement of Consumption: if the consumer postponed the consumption of commodity in future the demand is relatively elastic. For example, commodities whose demand is not urgent, have highly elastic demand as their consumption can be postponed if there is an increase in their prices. However, commodities with urgent demand like medicines have inelastic demand because it is an essential commodity whose consumption cannot be post pended.

G. Time Period: Price elasticity of demand is related to a period of time. The elasticity of demand varies directly with the time period. In the short run the demand is generally inelastic and in long-run it becomes relatively elastic. This is because consumers find it difficult to change their habits, in the short run, in order to response to the change in the price of the commodity. However, demand is more elastic in long run as their other substitutes available in the market, if the price of the given commodity rises.

Q.6. Importance of elasticity of demand.

Importance of Elasticity of demand.

1. Price discrimination

If the demand for a product has different elasticities in different markets, then the monopolist can fix different prices in different markets. This price discrimination is possible due to different price elasticities.

2. Levy of taxes

The government will get higher revenue if tax is increased on goods having inelastic demand. Conversely, the government, will get lower revenue if tax is increased on goods having elastic demand.

3. International Trade

Terms of trade refer to the rate at which domestic commodities are exchanged for foreign commodities. The terms of trade will be favourable to a country if its exports enjoy inelastic demand in the world market.

4. Determination of volume of output

Volume of goods and services must be produced in accordance with the demand for the commodity. When the demand is inelastic, the producer will produce more goods to take the advantage of higher prices. Hence the nature of elastic and inelastic demand helps in the determination of the volume of output.

5. Fixation of wages for labourers

If the demand for workers is inelastic, efforts of trade unions to raise wages of the workers will be successful. On the other hand, if the demand for labour is elastic, they may not succeed in increasing the wage rate by trade union activity.

6. Poverty in the midst of plenty

The concept of elasticity of demand explains the paradox of poverty i.e. poverty in the midst of plenty. For example, bumper crop of food grains should bring agricultural prosperity but if the demand for food grains is inelastic, the agriculturist will be the loser if low price is paid.

UNIT- 3

Q.1. Describe the law of variable proportions with suitable diagram.

Law of Variable Proportions occupies an important place in economic theory. This law is also known as Law of Proportionality.

Keeping other factors fixed, the law explains the production function with one factor variable. In the short run when output of a commodity is sought to be increased, the law of variable proportions comes into operation.

Therefore, when the number of one factor is increased or decreased, while other factors are constant, the proportion between the factors is altered. For instance, there are two factors of production viz., land and labour.

Land is a fixed factor whereas labour is a variable factor. Now, suppose we have a land measuring 5 hectares. We grow wheat on it with the help of variable factor i.e., labour. Accordingly, the proportion between land and labour will be 1: 5. If the number of laborers is increased to 2, the new proportion between labour and land will be 2: 5. Due to change in the proportion of factors there will also emerge a change in total output at different rates. This tendency in the theory of production called the Law of Variable Proportion.

Definitions:

“As the proportion of the factor in a combination of factors is increased after a point, first the marginal and then the average product of that factor will diminish.” Benham

“An increase in some inputs relative to other fixed inputs will in a given state of technology cause output to increase, but after a point the extra output resulting from the same additions of extra inputs will become less and less.” Samuelson

“The law of variable proportion states that if the inputs of one resource is increased by equal increment per unit of time while the inputs of other resources are held constant, total output will increase, but beyond some point the resulting output increases will become smaller and smaller.” Left witch

Assumptions:

Law of variable proportions is based on following assumptions:

(i) .Constant Technology:

The state of technology is assumed to be given and constant. If there is an improvement in technology the production function will move upward.

(ii). Factor Proportions are Variable:

The law assumes that factor proportions are variable. If factors of production are to be combined in a fixed proportion, the law has no validity.

(iii). Homogeneous Factor Units:

The units of variable factor are homogeneous. Each unit is identical in quality and amount with every other unit.

(iv) Short-Run:

The law operates in the short-run when it is not possible to vary all factor inputs.

Explanation of the Law:

In order to understand the law of variable proportions we take the example of agriculture. Suppose land and labour are the only two factors of production.

By keeping land as a fixed factor, the production of variable factor i.e., labour can be shown with the help of the following table:

Table 1.

Units of Land	Units of Labour	Total Production	Average Production	Marginal Production
10 Acres	0	–	–	–
”	1	20	20	20
”	2	50	25	30
”	3	90	30	40
”	4	120	30	30
”	5	140	28	20
”	6	150	25	10
”	7	150	21.3	0
”	8	140	17.5	-10

From the table 1 it is clear that there are three stages of the law of variable proportion. In the first stage average production increases as there are more and more doses of labour and capital employed with fixed factors (land). We see that total product, average product, and marginal product increases but average product and marginal product increases up to 40 units. Later on, both start decreasing because proportion of workers to land was sufficient and land is not properly used. This is the end of the first stage.

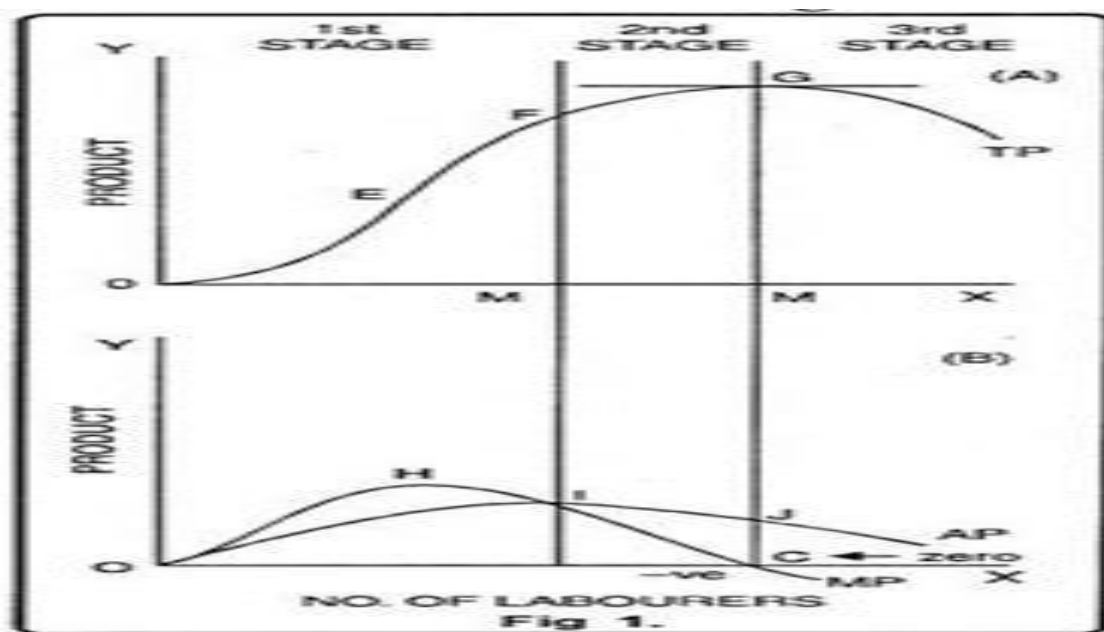
The second stage starts from where the first stage ends or where $AP=MP$. In this stage, average product and marginal product start falling. We should note that marginal product falls at a faster rate than the average product. Here, total product increases at a diminishing rate. It is also maximum at 70 units of labour where marginal product becomes zero while average product is never zero or negative.

The third stage begins where second stage ends. This starts from 8th unit. Here, marginal product is negative and total product falls but average product is still positive. At this stage, any additional dose leads to positive nuisance because additional dose leads to negative marginal product.

Graphic Presentation:

In fig. 1, on OX axis, we have measured number of labourers while quantity of product is shown on OY axis. TP is total product curve. Up to point ‘E’, total product is increasing at increasing rate. Between points E and G it is increasing at the decreasing rate. Here marginal product has started falling. At point ‘G’ i.e., when 7 units of labourers

are employed, total product is maximum while, marginal product is zero. Thereafter, it begins to diminish corresponding to negative marginal product. In the lower part of the figure MP is marginal product curve.



Up to point 'H' marginal product increases. At point 'H', i.e., when 3 units of labourers are employed, it is maximum. After that, marginal product begins to decrease. Before point 'I' marginal product becomes zero at point C and it turns negative. AP curve represents average product. Before point 'I', average product is less than marginal product. At point 'I' average product is maximum. Up to point T, average product increases but after that it starts to diminish.

Three Stages of the Law:

1. First Stage:

First stage starts from point 'O' and ends up to point F. At point F average product is maximum and is equal to marginal product. In this stage, total product increases initially at increasing rate up to point E. between 'E' and 'F' it increases at diminishing rate. Similarly marginal product also increases initially and reaches its maximum at point 'H'. Later on, it begins to diminish and becomes equal to average product at point T. In this stage, marginal product exceeds average product ($MP > AP$).

2. Second Stage:

It begins from the point F. In this stage, total product increases at diminishing rate and is at its maximum at point 'G' correspondingly marginal product diminishes rapidly and becomes 'zero' at point 'C'. Average product is maximum at point 'I' and thereafter it begins to decrease. In this stage, marginal product is less than average product ($MP < AP$).

3. Third Stage:

This stage begins beyond point 'G'. Here total product starts diminishing. Average product also declines. Marginal product turns negative. Law of diminishing returns firmly manifests itself. In this stage, no firm will produce anything. This happens because marginal product of the labour becomes negative. The employer will suffer losses by employing more units of labourers. However, of the three stages, a firm will like to produce up to any given point in the second stage only.

Total Product	Marginal Product	Average Product
Stage I First increases at increasing rate then at diminishing rate.	Increases in the beginning then reaches a maximum and begins to decrease.	First increases, continues to increase and becomes maximum.
Stage II Continues to increase at diminishing rate and becomes maximum.	Continues to diminish and becomes equal to zero.	Becomes equal to MP and then begins to diminish.
Stage III Diminishes	Becomes negative.	Continues to diminish but will always be greater than zero.

In Which Stage Rational Decision is Possible:

To make the things simple, let us suppose that, a is variable factor and b is the fixed factor. And a_1, a_2, a_3, \dots are units of a and b_1, b_2, b_3, \dots are unit of b.

Stage I is characterized by increasing AP, so that the total product must also be increasing. This means that the efficiency of the variable factor of production is increasing i.e., output per unit of a is increasing. The efficiency of b, the fixed factor, is also increasing, since the total product with b_1 is increasing.

The stage II is characterized by decreasing AP and a decreasing MP, but with MP not negative. Thus, the efficiency of the variable factor is falling, while the efficiency of b, the fixed factor, is increasing, since the TP with b_1 continues to increase.

Finally, stage III is characterized by falling AP and MP, and further by negative MP. Thus, the efficiency of both the fixed and variable factor is decreasing.

Rational Decision:

Stage II becomes the relevant and important stage of production. Production will not take place in either of the other two stages. It means production will not take place in stage III and stage I. Thus, a rational producer will operate in stage II.

Suppose b were a free resource; i.e., it commanded no price. An entrepreneur would want to achieve the greatest efficiency possible from the factor for which he is paying, i.e., from factor a. Thus, he would want to produce where AP is maximum or at the boundary between stage I and II.

If on the other hand, a were the free resource, then he would want to employ b to its most efficient point; this is the boundary between stage II and III.

Obviously, if both resources commanded a price, he would produce somewhere in stage II. At what place in this stage production takes place would depend upon the relative prices of a and b.

Q.2. Explain about law of returns to scale.

In the long run all factors of production are variable. No factor is fixed. Accordingly, the scale of production can be changed by changing the quantity of all factors of production. The law of returns to scale explains the proportional change in output with respect to proportional change in inputs. In other words, the law of returns to scale states when there are a proportionate change in the amounts of inputs, the behavior of output also changes. The degree of change in output varies with change in the amount of inputs. For example, an output may change by a large proportion, same proportion, or small proportion with respect to change in input.

There are three stages or types of law of returns to scale. They are:

- 1. Increasing Returns to scale
- 2. Constant Returns to scale
- 3. Decreasing Returns to scale

Increasing Returns to scale:

If the proportional change in the output of an organization is greater than the proportional change in inputs, the production is said to reflect increasing returns to scale. For example, to produce a particular product, if the quantity of inputs is doubled and the increase in output is more than double, it is said to be an increasing returns to scale.

Units of Labor (L)	Units of Capital (K)	Total Units of Inputs(L+K)	TP	MP
-----------------------	-------------------------	-------------------------------	----	----

1L	1K	1L+1K	500	500
2L	2K	2L+2K	1200	700
3L	3K	3L+3K	2500	1300

From the above table, we can see one unit of labor and capital produce 500 units of output. When both inputs are increased by 100% i.e. 2L and 2K the level of output is 1200 units which is more than 100% change. Here, a percentage change in output is more than the percentage change in input which shows increasing return to scale.

Constant Returns to scale:

The production is said to generate constant returns to scale when the proportionate change in input is equal to the proportionate change in output. For example, when inputs are doubled, so output should also be doubled, then it is a case of constant returns to scale.

Units of Labor(L)	Units of Capital (K)	Total Units of Inputs(L+K)	TP	MP
1L	1K	1L+1K	500	500
2L	2K	2L+2K	1000	500
3L	3K	3L+3K	1500	500

From the above table, we can see one unit of labor and capital produces 500 units of output. When both inputs are increased by 100% i.e. 2L and 2K, the level of output increases to 1000 units which are exactly 100% change. Here, a percentage change in output is equal to the percentage in input which shows constant returns to scale.

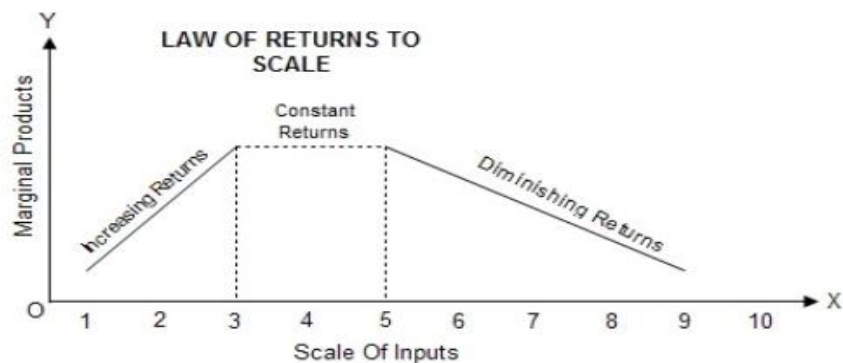
Decreasing Returns to Scale:

Decreasing returns to scale refers to a situation when the proportionate change in output is less than the proportionate change in input. For example, when capital and labor is doubled but the output generated is less than doubled, the returns to scale would be termed as diminishing returns to scale.

Units of Labor (L)	Units of capital(K)	Total Units of Inputs(L+K)	TP	MP
1L	1K	1L+1K	500	500
2L	2K	2L+2K	900	400
3L	3K	3L+3K	1100	200

From the above table, we can see one unit of labor and capital produces 500 units of output. When both inputs are increased by 100% i.e. 2L and 2K, the level of output is 900 units which are less than 100% change. Here, a percentage change in output is less than the percentage change in input which shows decreasing returns to scale.

The concept of law of returns to scale can be explained with the help of figure given below:



In the figure above X-axis represents combination of inputs and Y-axis represents marginal product. The upward sloping segment of the curve represents the increasing returns to scale because it shows increasing marginal productivity of inputs. The

horizontal segments of the curve represents constant returns to scale because it shows constant marginal productivity of inputs. Finally, the downward sloping segment of the curve represents the decreasing returns to scale because it shows decreasing marginal productivity of inputs.

Q.3. Explain the shapes of various cost curves of the firm in the short-run.

Short Run Cost Curves:

The cost schedules in Table 7.1 are represented graphically. Fig. 7.1. shows total fixed costs as a horizontal straight line at a figure of Rs. 50, because this cost is increased at all levels of output (starting with zero and ending with 10).

The curves TC and TVC are parallel. The vertical distance between them is Rs. 50, which is TFC.

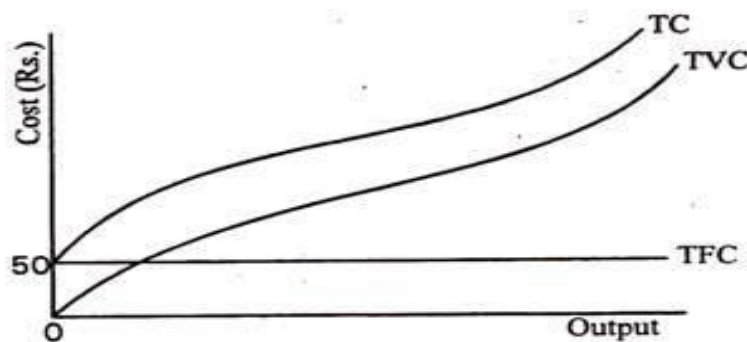


Fig. 7.1. Short-Run Total Cost Curves

Thus, we find that as output increases the average cost decreases. This will hold good up to the point of maximum capacity of the equipment and scale used in the factory. If production is pushed beyond this level, without changing the equipment and scale, difficulties will arise.

More intensive utilisation of the fixed equipment must necessarily lead to diminishing returns. Overtime allowance will have to be paid; the work period will have to be lengthened out into double or triple shifts. In effect there will be increase in the use of

labour and raw materials while capital equipment is kept constant. The law of variable proportions will apply and diminishing returns or increasing costs will begin to operate.

Thus, in the short run we find that as output increases the average cost falls up to the point of maximum capacity of the equipment and scale used in the firm and rises thereafter. The average cost curve is U-shaped, falling to a minimum and thereafter rising.

The marginal cost curve will follow the average cost curve because they are related in a definite way. The marginal cost falls for initial increases of output and thereafter increases continuously.

Diagrammatic Illustration:

The short-run cost curves can be diagrammatically represented as in the figure below:

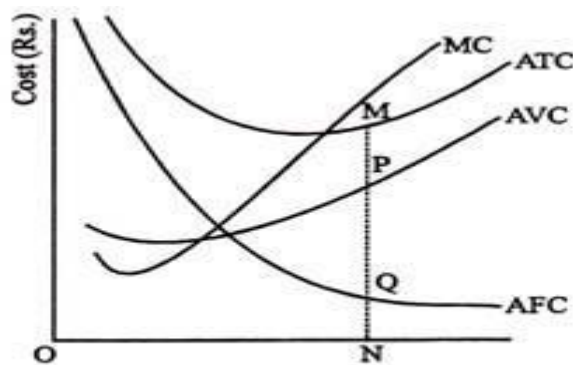


Fig. 7.2. Short-run Average and Marginal Cost of Curves

The curve AFC shows the average fixed cost. It must slope downwards to the right because as output increases the average fixed cost diminishes. The curve AFC is a rectangular hyperbola because average fixed cost x quantity produced = a constant.

The curve AVC shows the average variable cost. It slopes downwards in the initial stages but thereafter rises slowly. The curve ATC shows average total cost. The ordinates of ATC are obtained by adding up the ordinates of AVC and AFC, i.e., if P, Q and M are corresponding points on the three curves, $PN + QN = MN$. The curve MC shows marginal cost.

Fig. 7.2 shows the four short-run cost curves of an individual firm. ATC is the curve of average total costs. It slopes downwards initially and then rises upwards.

The following points are to be noted:

1. The short-run average cost curve may be like a U or a V or like a 'dish', depending on the nature of the equipment and scale and their productivity. The relative lengths and inclinations of the upward and the downward portions of the curve differ from firm to firm and industry to industry. Generally speaking, the shape of the curve depends on the relative importance of the fixed and the variable costs of production and the degree of sharpness with which the law of diminishing returns is operative for the variable factors.
2. The curves show cost changes brought about by changes in output, other things remaining the same.
3. Cost changes may be due to extraneous factors, e.g., rise in the price of raw materials, increase of wages, etc. Such changes will be shown by shifting the curves to new positions.

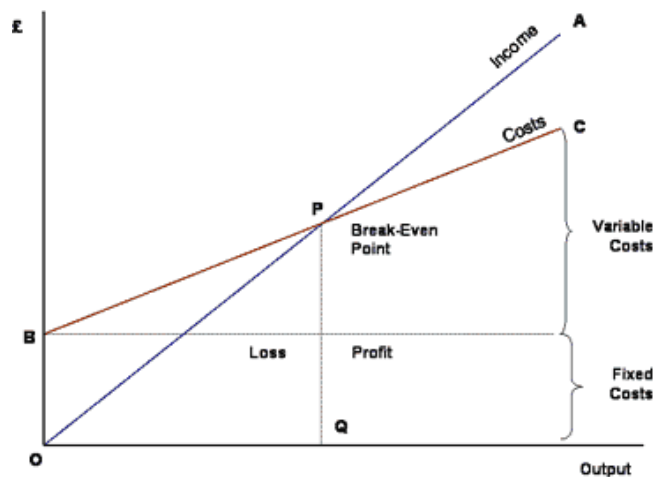
Q. 4. Elucidate the breakeven analysis with the help of diagram.

Break Even Analysis Break Even Analysis is an analysis of cost, revenue and sales of a firm with a view to determine that volume of sales where the firm's cost and revenues will be equal. It is a study of the relationship between the volume and cost of production and marketing on the one hand, and the revenue and profit, on the other hand. It aims at the determination of that point of output level at which the firm will break evenly without profit or loss. The point occurs when the sale proceeds are just equal to the cost of production.

Matz and Curry define a break even analysis thus "Break even analysis indicates at what level costs and revenues are in equilibrium". Thus, the analysis is concerned with the determination of break-even point. The break-even point may be described as a specific level of volume of sales which breaks the revenues and costs evenly. It is also known as no profit, no-loss point". At this point, the net income of the firm will be zero. Break-Even Chart The breakeven point can be computed mathematically also and charted on a graph paper. The breakeven point, when shown on a graph paper is called a break even chart. The break-even chart is "an excellent instrument panel for guidance in controlling the firm's business". In a graph it is represented by the point at which the line indicating the total cost cuts the line indicating the income from sales. Determination of the Break-even point The break-even point may be determined either in terms of physical units (volume of output) r

money value (value of sales) 1. BEP in terms of physical units This method is convenient for a single product firm. The BEP is the number of units of the commodity that shall be sold to earn enough revenue just to cover all the expenses of production. The revenue realized covers all costs, fixed as well as variable. The firm neither earns a profit nor incurs a loss. It is determined by the meeting point of total revenue and total cost curve of the firm. Consider the following table:

Output Units	Sales Income Rs.	Fixed cost Rs.	Variable Cost Rs.	Total Cost Rs.
10000	20000	20000	10000	30000
20000	40000	20000	20000	40000
30000	60000	20000	30000	50000



In the chart given above the volume of output is indicated by „X“ axis and the cost and sales value are plotted in the „Y“ axis.

Fixed cost is the same irrespective of the volume of output and it is a line parallel to the X axis. The total cost line is indicated by BC which starts from where the total cost is equal to the fixed cost.

When there is no output or when the output is equal to zero, the total cost is the same as the fixed cost. As the output increases the total cost also increases as the variable cost is to be added with the fixed cost.

The sales line is indicated by a line which starts from the origin and goes upward thereby showing the increased sales amount with the increased volume of production or units sold. The point of intersection of total cost line and sales line is the breakeven

point as the total cost and the sales revenue are the same at this point. It is breakeven point in the figure.

No profit or loss is made when output is equal to this breakeven point. In the diagram given above, BEP occurs at 40,000 units in the „X“ axis, when both sales income and cost of sales at this level are equal.

Any sales over and above 40,000 units will bring profits. If the sales go below 40,000 units, it will result in a loss.

BEP in terms of sales value:

This method is suitable to multi-product firm. Here also, the principle of total contribution is made equal to total fixed cost, but the contribution margin is expressed as a ratio to sales.

The BEP can be determined by the formula

$$\text{BEP} = \text{TFC} / \text{CM}$$

ASSUMPTIONS:

The break even analysis is based on the following assumptions

1. All cost can be classified into fixed cost and variable cost.
2. Fixed cost will remain constant over the volume range under consideration.
3. Variable cost will vary proportionately with changes in the level of output.
4. All revenue is perfectly variable with physical volume of production.
5. The volume of production and the volume of sales are equal. In other words there is no opening stock or closing stock.
6. There will be no change in the operation efficiency.
7. There is only one product. If there is a multi-product firm, the product mix must be stable.
8. The selling price must remain constant.
9. Prices of cost factors will remain constant.
10. Productivity and efficiency will remain constant.
11. Costs and revenue will have to be compared on a common activity base.
12. The rupees of revenues and the rupees of cost will remain uniform in terms of their purchasing powers.
13. The behaviour of cost and revenue can be reliably determined and remain linear over the relevant range.

Advantages:

The break even analysis confers the following advantages.

1. The break even chart is a simple presentation of cost volume and profit structure of the company. It presents a large volume of information in a simple graph.
2. It is more easily understood by the management of the company than the Profit and Loss Account and the cost statement.
3. It provides a useful guide to study the relationship between cost, volume and profit.
4. It is useful guide to take managerial decisions.
5. It provides a useful technique forecasting costs and profits at various volume of sales.
1. It shows the relative technique of fixed cost and variable cost. Thus it serves as a tool for cost control.
2. The profitability of various products can be studied with the help of break even analysis and product mix.
3. The position of the break even chart and the angle of incidence indicate the profit potentialities of the company.
4. It is a sign of financial stability and soundness of the company.

Limitation of BEP Analysis:

The break-even analysis has the following limitations.

First, the break-even analysis can be applied only to a single product system. Under the multi-product or jointly supplied product system the break-even analysis can be applied only when product-wise cost can be ascertained. But the determination of product-wise cost is extremely difficult.

Second, the break-even analysis cannot be usefully applied where historical data cannot be ascertained before-hand and where historical data are not relevant for estimating future costs and prices.

Third, the break even analysis is founded upon a number of unrealistic assumptions

E.g. Constancy of plant size, technology, production methodology, sales mix etc.

Fourth, the break-even analysis ignores the time lag between production and sales.

Fifth, the break-even analysis does not take into account the capital employed in the production and its costs which is an important consideration in profitability decisions.

Sixth, the valuation and allocation of costs in a company are usually arbitrary.

Seventh, the break-even analysis is based on accounting data. But accounting data suffer from various limitations, like neglect of imputed cost, arbitrary depreciations estimates,

inappropriate allocation of overhead costs, etc.

Eighth, the break-even analysis is static in character. It is based on the assumption of given relationships between costs, revenues and inputs.

Ninth, the break-even analysis may be a useful tool for short run analyses and it cannot be an effective tool for long-range analysis.

Tenth, the break-even analysis provides only a limited amount of information. For example, the effects of changes in fixed costs. Variable costs and selling prices cannot be represented in a single chart.

Eleventh, the study of effects of various product mixes can be made only with the help of a number of break-even charts.

Short questions:

Q.1 Production function

Production is the outcome of the combined efforts of land, labour, capital and entrepreneur. The entrepreneur arranges land, labour and capital, combines them in required proportions and sets them to work. Production function expresses the functional relationship between resources (inputs) and output (goods and services). In fact, given the state of technology, production function shows the technological-physical relationship between inputs and output.

It is observed that in the short-run some of the inputs are fixed. They are difficult to change in the short-run. The laws of returns deal with the short-run production function. Let us have a look at a simple production function which is given below

$$O = f(L, L_{ab}, K, T)$$

Where,

O = Output,

L = Land,

L_{ab} = Labour,

k = Capital

T = Technology)

Q.2. Internal economies

They are economic advantages, which enable a firm to get proportionately large output than increments in factor inputs. Some of the internal Economics are as follows.

1. Specialization and Division of Labour:

As scale of Production expands, higher degree of specialization and division of labour becomes possible. Under division of work, production of a commodity is split up into several processes. Each worker specializes in one particular process due to which the skill of each worker is improved.

2. Technical Economics

These economics arise from the greater efficiency of large size of plants and capital equipments, which the large firm can afford to employ superior, more specialized and automatic machines can be installed by them.

3. Production Economics

The large firm is able to utilize all its waste materials for the development of by product industry. Thus, it enjoys the economy of the use of by-product. For example, the waste left over after manufacturing sugar from the sugarcane can be use for producing paper by installing a plant for this purpose.

4. Managerial Economics

These economics are due to better and more elaborate management, which only the large firm can afford. In a large firm, the owner can concentrate on fundamental problems of policy-making and business expansion, delegating the routine jobs and details to highly qualified subordinates.

5. Marketing Economics

As the firm expands in its size, it is able to buy raw materials at cheaper rates as it buys regularly and in bulk quantities. It can secure concessions from railways and transport companies. It can also enjoy prompt delivery careful attention and considerate treatment from all intermediaries.

6. Financial Economics

The large firm with a large asset base and goodwill in the market is able to secure the necessary funds either as block capital or for meeting the working capital needs of the enterprise.

7. Risk and Survival Economics

Every firm has to face general and particular risks for its existence. While the former occur during general business depression due to insufficient demand, latter refers to market fluctuations for one product. Small firms cannot survive in the face of such risks and go into liquidation.

8. Economics of Employee welfare schemes

A large firm with adequate resources can provide employee welfare facilities for its managerial and technical staff, both within and outside the factory. These measures enhance the motivation, morale and commitment of the employees of the firm and its objectives. It leads to efficiency of the human capital and hence production.

Q.3. External Economics

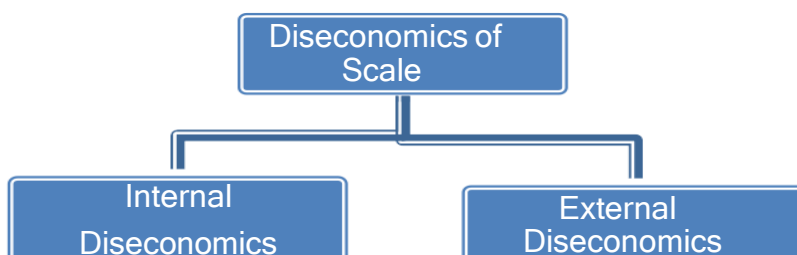
When many firms expand in a particular area, each member firm sources a number of economic advantages, which are known as external economics. Some of the external economics are as follows.

- a) The availability of better transportation and communication at cheaper rates.
- b) Provision of better and more adequate sources of power, water and electricity.
- c) Growth and development of ancillary industries, making use of waste matter by giving it the shape of by-products.
- d) Establishment of technical and engineering institutions ensuring continuous supply of skilled manpower.
- e) Better housing, public health and recreational facilities.

Q.4. Diseconomies of Scale

Economics of scale operate up to the point of optimum capacity. Beyond this point economics give place to Diseconomies" which is commonly termed as "Diseconomies of scale".

It can be classified as under.



I) Internal Diseconomies

The following are some of the internal diseconomies.

a) Inefficiency of Management

When output exceeds the optimum level, the management problems increase and management efficiency declines.

b) Technical Diseconomies

All equipment has an optimum capacity at which it works most efficiently and economically. If production is increased beyond the optimum point, diseconomies arise.

c) Financial Diseconomies

A number of curbs are being imposed by the government, banks and the financial institutions on the large borrowers, which serve as restraint on large scale production.

d) Risk and Survival Diseconomies

Large firms are more exposed to the risks than the smaller ones due to the lack of liquidity. Even risks like strike, lock-out, lay off are more in case of large establishments.

e) Limited availability of Natural Resources

It also causes diminishing returns to scale. For example doubling of coal mining plants will not double the coal output due to limited availability of coal deposits.

II) External Diseconomies

Some of the external diseconomies are as follows:

- a) Intense competition among the firms raises the Price of raw materials.
- b) Scarcity of fuel, electricity, power, water, finance etc.
- c) Management is exposed to Government restrictions.
- d) Heavy pressure on the transport system causing frequent traffic jams.
- e) Heavy expenditure on pollution control.

These are the various economics and diseconomies of scale.

Q.5. Relationship between AC& MC.

Marginal cost:

Marginal cost is the expenses incurred for the last unit produced. It is the addition to total cost by producing one more unit of output. It is the difference between two total

costs. In symbol,

$$\begin{aligned} \mathbf{MC} &= \mathbf{TC}_{n+1} - \mathbf{TC}_n \\ \mathbf{MC} &= \mathbf{Marginal\ cost} \\ \mathbf{TC} &= \mathbf{Total} \\ &\mathbf{cost} \end{aligned}$$

n = Number of units produced.

Marginal cost can be found out by differentiating total cost function. Symbolically,

$$MC \equiv \frac{dC}{dQ}$$

Where, dC = Change in total cost;

dQ = Change in output.

Average cost:

Average cost is the cost per unit of output. It is arrived at by dividing total cost by total output. It can also be obtained by adding the average fixed cost (AFC), with the average variable cost (AVC). In symbol

$$AC \equiv \frac{TC}{Q}$$

or $AC = AFC + AVC$

AC =

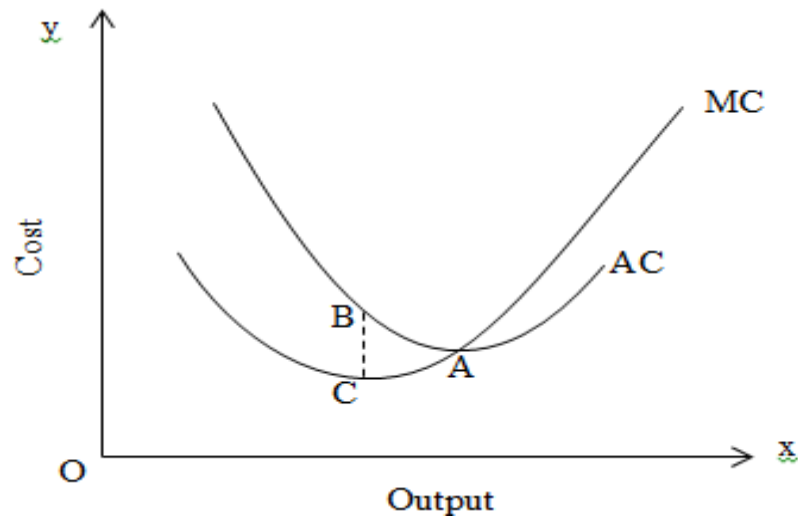
Average

costTC =

Total cost

Q = Total output

Relationship between AC and MC



In this figure,

AC = Average cost curve

MC = Marginal cost curve

When AC falls MC also falls and

MC lies below AC.

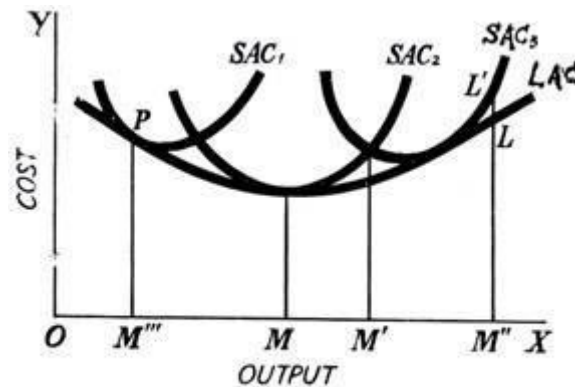
- When AC is minimum $AC = MC$.
- When AC rises MC also rises and MC lies above AC.

Q.6. OPTIMUM FIRM

“Optimum firm” refers to the ideal size of the firm. It is the firm, which produces optimum output with the optimum plant. Optimum output is called „least-cost output“. Optimum plant is one, which produces maximum output at the minimum average cost of production. According to **E.A.G. Robinson**, “An optimum firm is the one which operates at the scale at which, in the existing conditions of techniques and organizing ability, has the lowest average cost of production when all those costs which must be covered in the long run are included”. In short, optimum firm is one which produces the maximum output at minimum cost. The following factors determine the optimum size of the firm:

- (i) Technical factors;
- (ii) Managerial factors;
- (iii) Financial factors;
- (iv) Marketing factors; and
- (v) Risk factors.

It can be explained with the help of the following figure:



LAC Curve : An Envelope
Fig. 23.6

Where, LAC = Long run average cost curve

SAC₁, SAC₂, and SAC₃ = Short run average cost curves

In the figure, the short run cost curves of three firms are given. Firm with SAC₂, is the optimum firm. It is because it produces the maximum output OM with minimum average cost both in the short run and long run. It is the output produced with least cost combination.

In the case of firm with SAC₁, the output is less and average cost is high. On the other hand, firm with SAC₃, output is more but average cost is high. Thus, firm with SAC₂ is the optimum firm.

UNIT - 4

Q. 1. Explain about the features of perfect competition

The theory of perfect competition has originated in the late-19th century. The first laborious definition of perfect competition and resultant some of its main results was given by Léon Walras. Then later in the 1950s, the theory was further redefined by Kenneth Arrow and Gérard Debreu. But in reality, markets are never perfect.

A perfectly competitive market is a hypothetical in nature. In this market producers are large in number; however, they may face many competitor firms selling highly similar types of goods, in which case they often act as price takers. Agricultural markets are commonly used as an example.

A perfectly competitive firm is also known as a price taker because the pressure of competing firms in the market forces other firms to accept the price prevailing in the

market. If a firm in a perfectly competitive market try to raise the price of its product in the market it will lose all of its shares in the market. The market price in the perfect competition is determined by the market supply and market demand in the entire market and not by the individual firm or seller in the market. Further in this chapter we will try to discuss the price determination and equilibrium of the firm and industry under perfect competition.

Perfect competition can be generally understood by its following important features:

- 1. Large number of buyers and sellers:** The very first important feature of perfect competition is its number of participant's i.e. number of buyers and sellers. Both buyers and sellers are large in number under perfect competition. The existence of this large number of buyers and sellers makes no influence over price of the product. Therefore, the individual firm under perfect competition is a price taker because he has no influence over the price. Whatever price the market demand and market supply collectively decide every firm is expected to follow the same.
- 2. Homogeneous or Similar products:** The second important feature of perfect competition is the commodity which is being sold in the market. It means the producer commodity which is sold in perfect competition is similar or identical in nature. As the product are identical or similar in nature the firm has no control over the price of the product because products are perfect substitute for one another. No firm can try to charge different price to consumer than the market price due to homogeneous factor of product.
- 3. Free entry and exit of firm:** There are no restriction to the entry and exit of firm in the market. The condition of free entry and free exit of a firm applies only in the long run, in short run firms can neither change the size of their plants, nor new firms can enter or old firm can leave the market. If the existing old firm earns super normal profit in the short-run will attract the new firm to enter in the market in the long-run.
- 4. Complete market information:** It is assumed that there is a perfect knowledge about the market situation to both buyers and seller in the perfect competition. A perfect knowledge or complete information about the market demand and market supply, price etc. This allows the firms and buyer to take appropriate decision to influence the market demand and supply collectively.
- 5. Perfect mobility of factors of production:** Under perfect competition the factors of production are assumed to be freely mobile. Factors of production

such as labour and capital are assumed to be mobile. The mobility of factors helps the firm to adjust the market demand with the change in market supply.

6. **Notransportationcost:** It is assumed that there is no transportation cost under perfect competition. It applies when the production and sales market take place in a small geographical area or in the same area.

For example, agriculture products are sold in the same village or town which requires no transportation cost.

Q.2.What is perfect competition? How price and output is determined under perfect competition?

Perfect competition refers to a market situation where there are a large number of buyers and sellers dealing in homogenous products.

Moreover, under perfect competition, there are no legal, social, or technological barriers on the entry or exit of organizations.

In perfect competition, sellers and buyers are fully aware about the current market price of a product. Therefore, none of them sell or buy at a higher rate. As a result, the same price prevails in the market under perfect competition.

Under perfect competition, the buyers and sellers cannot influence the market price by increasing or decreasing their purchases or output, respectively. The market price of products in perfect competition is determined by the industry. This implies that in perfect competition, the market price of products is determined by taking into account two market forces, namely market demand and market supply.

In the words of Marshall, “Both the elements of demand and supply are required for the determination of price of a commodity in the same manner as both the blades of scissors are required to cut a cloth.” As discussed in the previous chapters, market demand is defined as a sum of the quantity demanded by each individual organizations in the industry.

On the other hand, market supply refers to the sum of the quantity supplied by individual organizations in the industry. In perfect competition, the price of a product is determined at a point at which the demand and supply curve intersect each other. This point is known as equilibrium point as well as the price is known as equilibrium price. In addition, at this point, the quantity demanded and supplied is called equilibrium quantity. Let us discuss price determination under perfect competition in the next sections.

Demand under Perfect Competition:

Demand refers to the quantity of a product that consumers are willing to purchase at a particular price, while other factors remain constant. A consumer demands more quantity at lower price and less quantity at higher price. Therefore, the demand varies at different prices.

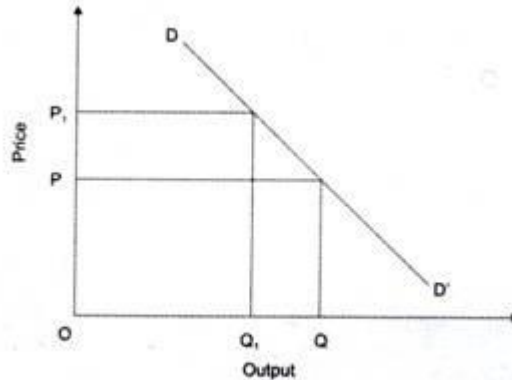


Figure-1: Demand Curve under Perfect Competition

In Figure-2, the quantity supplied is OQ at price OP. When price increases to OP1, the quantity supplied increases to OQ1. This is because the producers are able to earn large profits by supplying products at higher price. Therefore, under perfect competition, the supply curves (SS') slopes upward.

Supply under Perfect Competition:

Supply refers to quantity of a product that producers are willing to supply at a particular price. Generally, the supply of a product increases at high price and decreases at low price.

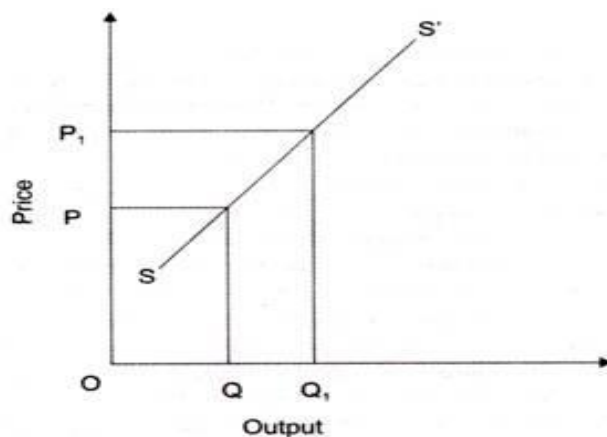


Figure-2: Supply Curve under Perfect Competition

Equilibrium under Perfect Competition:

As discussed earlier, in perfect competition, the price of a product is determined at a point at which the demand and supply curve intersect each other. This point is known as equilibrium point. At this point, the quantity demanded and supplied is called equilibrium quantity.

Figure-3 shows the equilibrium under perfect competition:

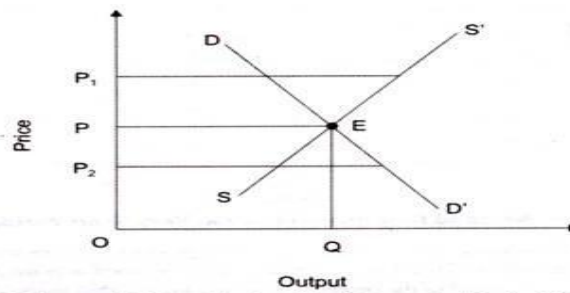


Figure-3: Price and Output Determination under Perfect Competition

In Figure-3, it can be seen that at price OP₁, supply is more than the demand. Therefore, prices will fall down to OP. Similarly, at price OP₂, demand is more than the supply. Similarly, in such a case, the prices will rise to OP. Thus, E is the equilibrium at which equilibrium price is OP and equilibrium quantity is OQ.

Q.3. Explain the equilibrium of firm and industry in the short-run under perfect competition

Competition is an important feature of a perfect market. There exists competition between buyers and buyers for buying a product and sellers for selling a product. According to Joan Robinson, “Perfect competition prevails, when the demand for the output is perfectly elastic”. Then, there will be uniform price and the revenue curve will be a horizontal straight line parallel to OX-axis.

There should be no restrictions on the movement of factors of production. It is essential in order to enable the sellers (firms) to adjust their supply to demand. to OX-axis)

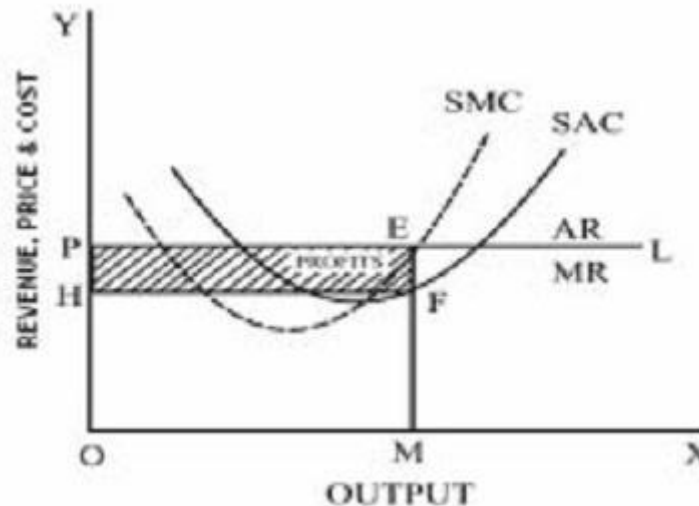
Short run equilibrium, price and output determination under perfect competition

1. Since a firm in the perfectly competitive market is a price-taker, it has to adjust its level of output to maximize its profit. The aim of any producer is to maximize his profit.
2. The short run is a period in which the number and land size of the firms are fixed. In this period, the firm can produce more only by increasing the variable inputs.
3. As the entry of new firms or exits of the existing firms are not possible in the short-run, the firm in the perfectly competitive market can either earn super-normal profit or normal profit or incur loss in the short period.

Super-normal Profit

When the average revenue of the firm is greater than its average cost, the firm is earning super-normal profit.

Short-run equilibrium with super-normal profits



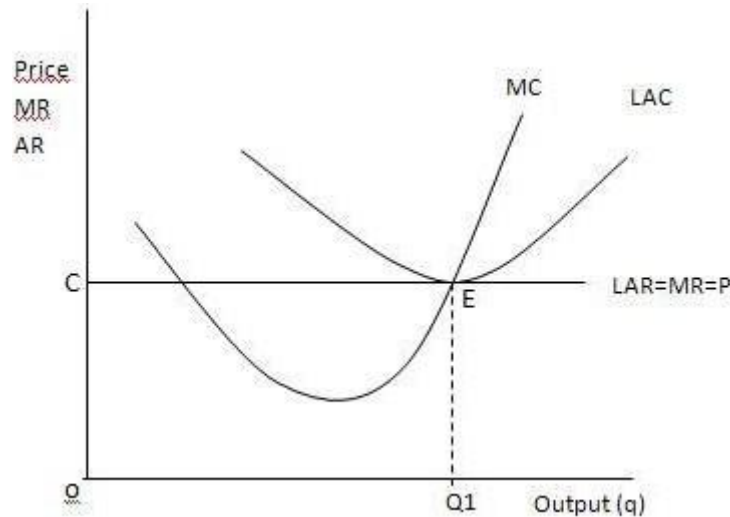
In above figure, output is measured along the x-axis and price, revenue and cost along the y-axis. OP is the prevailing price in the market. PL is the demand curve or average and the marginal revenue curve. SAC and SMC are the short run average and marginal cost curves. The firm is in equilibrium at point „E“ where $MR = MC$ and MC curve cuts MR curve from below at the point of equilibrium. Therefore the firm will be producing OM level of output. At the OM level of output ME is the AR and MF is the average cost. The profit per unit of output is EF . The total profits earned by the firm will be equal of EF multiplied by OM or HP . Thus the total profits will be equal to the area $HFEP$. $HFEP$ is the supernormal profits earned by the firms.

Long run equilibrium, price and output determination

In the long run, all factors are variable. The firms can increase their output by increasing the number and plant size of the firms. Moreover, new firms can enter the industry and the existing firms can leave the industry. As a result, all the existing firms will earn only normal profit in the long run.

If the existing firms earn supernormal profit, the new firms will enter the industry to compete with the existing firms. As a result, the input produced will increase. When the total output increases, the demand for factors of production will increase leading to increase in prices of the factors. This will result in increase in average cost.

On the other side, when the output produced increases, the supply of the product increases. The demand remaining the same, when the supply of the product increases, the price of the product comes down. Hence the average revenue will come down. A fall in average revenue and the rise in average cost will continue till both become equal. ($AR=AC$). Thus, all the perfectly competitive firms will earn normal profit in the long



run.

Figure represents long run equilibrium of firm under perfect competition. The firm is in equilibrium at point E where $LMC=MR=AR=LAC=P$. The long run equilibrium output is OQ_1 . The firm is earning must the normal profit. The equilibrium price is OC . If the price rises above OC , the firm will earn abnormal profit, which will attract new firms into the industry. If the price is less than OC , there will be loss and the tendency will be to exit. So in the long run equilibrium, OC will be the price and marginal cost will be equal to average cost and average revenue. Thus the firm in the long run will earn only normal profit. Competitive firms are in equilibrium at the minimum point of LAC curve. Operating at the minimum point of LAC curve signifies that the firm is of optimum size i.e. producing output at the lowest possible average cost.

Q.4. Analyse the price and output determination under monopoly market

Monopoly is a market structure in which there is a single seller, there are no close substitutes for the commodity it produces and there are barriers to entry.

Characteristics of monopoly

1. **Single Seller:** There is only one seller; he can control the price or supply of his product. But he cannot control demand for the product, as there are many buyers.

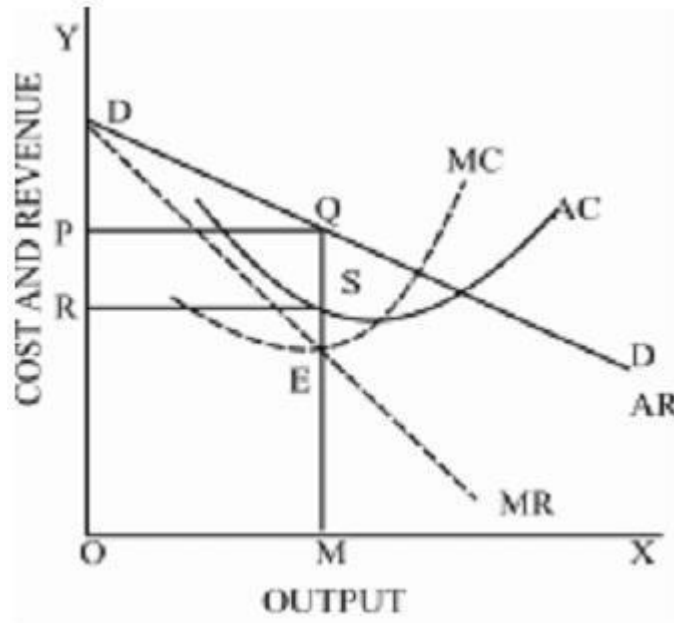
2. **No close substitutes:** There are no close substitutes for the product. The buyers have no alternatives or choice. Either they have to buy the product or go without it.
3. **Price:** The monopolist has control over the supply so as to increase the price. Sometimes he may adopt price discrimination. He may fix different prices for different sets of consumers. A monopolist can either fix the price or quantity of output; but he cannot do both, at the same time.
4. **No Entry:** there is no freedom to other producers to enter the market as the monopolist is enjoying monopoly power. There are strong barriers for new firms to enter. There are legal, technological, economic and natural obstacles, which may block the entry of new producers.
5. **Firm and Industry:** Under monopoly, there is no difference between a firm and an industry. As there is only one firm, that single firm constitutes the whole industry.

Price and Output Determination

A monopolist like a perfectly competitive firm tries to maximize his profits. A monopoly firm faces a downward sloping demand curve, that is, its average revenue curve. The downward sloping demand curve implies that large output can be sold only by reducing the price. The marginal revenue curve will be below the average revenue curve.

The average cost curve is „U“ shaped. The monopolist will be in equilibrium when $MC=MR$ and the MC curve cuts the MR curve from below.

In figure, AR is the Average Revenue Curve and MR is the Marginal Revenue curve. AR curve is falling and MR curve lies below AR. The monopolist is in equilibrium at E where $MR=MC$. He produces OM units of output and fixes price at OP. At OM output, the average revenue is MQ and average cost MS. Therefore the profit per unit is $MQ-MS=SQ$. Total profit is average profit (SQ) multiplied by output(OM), which is equal to RSQP. The monopolist is in equilibrium at point E and produces OM output at which he is earning maximum profit. The monopoly price is higher than the marginal revenue and marginal cost.



Short answer questions:

Q.1. Classification of markets

On the basis of extent of the market:

1. **Local Markets:** In such a market the buyers and sellers are limited to the local region or area. They usually sell perishable goods of daily use since the transport of such goods can be expensive.
2. **Regional Markets:** These markets cover a wider area than local markets like a district, or a cluster of few smaller states
3. **National Market:** This is when the demand for the goods is limited to one specific country. Or the government may not allow the trade of such goods outside national boundaries.
4. **International Market:** When the demand for the product is international and the goods are also traded internationally in bulk quantities, we call it an international market.

On the Basis of Time

5. **Very Short Period Market:** This is when the supply of the goods is fixed, and so it cannot be changed instantaneously. Say for example the market for flowers, vegetables, Fruits etc. The price of goods will depend on demand.

6. **Short Period Market:** The market is slightly longer than the previous one. Here the supply can be slightly adjusted.
7. **Long Period Market:** Here the supply can be changed easily by scaling production. So it can change according to the demand of the market. So the market will determine its equilibrium price in time.

On the Basis of Competition:

1. Perfect competition market
2. Imperfect competition market which comprises monopoly market, monopolistic competition market, duopoly market, oligopoly market etc.

Q.2. Features of monopoly market

1. **Single Seller:** There is only one seller; he can control the price or supply of his product. But he cannot control demand for the product, as there are many buyers.
2. **No close substitutes:** There are no close substitutes for the product. The buyers have no alternatives or choice. Either they have to buy the product or go without it.
3. **Price:** The monopolist has control over the supply so as to increase the price. Sometimes he may adopt price discrimination. He may fix different prices for different sets of consumers. A monopolist can either fix the price or quantity of output; but he cannot do both, at the same time.
4. **No Entry:** there is no freedom to other producers to enter the market as the monopolist is enjoying monopoly power. There are strong barriers for new firms to enter. There are legal, technological, economic and natural obstacles, which may block the entry of new producers.
5. **Firm and Industry:** Under monopoly, there is no difference between a firm and an industry. As there is only one firm, that single firm constitutes the whole industry.

Q.3. Selling costs

Selling cost is one of the important features of monopolistic competition. Under perfect competition, as there are homogeneous goods there is no need for selling cost. Similarly under monopoly due to the absence of substitute products, selling cost is not required. But in case of monopolistic competition as close substitute products are available, firm has to incur selling cost. Thus the cost incurred by the firm to promote their product in the market or to increase the demand for the product in the market is called the selling cost. Various forms of incurring selling cost are as follows-

- 1) **Advertising:** this is the main form of selling cost. Through advertisement the firm is trying to show how their product is superior to other products that are available in the market .Advertisement can be through T.V, radio, news paper, hoardings, distributionofpamphletsetc.
- 2) **Exhibitions :** exhibitions can be held at local, state, national and an international level. The purpose of exhibition is to increase the sale of the product.
- 3) **Windowdressing-** various products like garments, electronic items, and other consumer durables are displayed to the consumers to provide some idea about the product and also to attract the consumers.
- 4) **Free samples-** in case of goods like soaps, tea, biscuits, oil, and hand wash etc. Companies distribute free samples to attract the large number of customers.
- 5) **Gifts** -various gifts are offered by the companies on purchase of a specific amount.
- 6) **Discounts** - another way of attracting large number of customers is to offer them large discounts. Once the market for the product is established, the discount may be withdrawn.
- 7) **After sales services-**good afters alesservicesplayanimportant role in gaining goodwill of the customers. Along with better after sales services, warranty period, relation with customers etc. are also important to have greater sale of their product in the market.

Module -5

Q.1. Define national income and explain various concepts of national income.

The national income has been defined by different persons in different ways. There is nothing absolutely right or wrong about any of these definitions. In general, national income means the total value of goods and services produced annually in a country. In other words, the total amount of income accruing from economic activities in a year's time is known as national income. It includes payments made to all resources in the form of wages, interests, rent and profits.

The definitions of national income can be grouped into two classes. 1) the traditional definitions advanced by Marshall, Pigou and Fisher and 2) modern definitions:

1. Marshall's Definitions

Marshall defined national income as below:

According to Marshall, "the labour and capital of country acting on its natural resources produce annually a certain net aggregate of commodities, natural and immaterial including services of all kinds... this is the true net annual income or revenue of the country or national dividend". Thus, the national income of a country can be defined as the total market value of all final goods and services produced in the economy in a year.

Though the definition is theoretically sound, simple and comprehensive it has serious practical limitations. It is not easy to make statistically correct estimates of the total production of goods and services because the difficulties of the double counting and portion of the produce which is retained for personal consumption.

2. A.C. Pigou's Definition

A.C. Pigou has, in his definition of national income included, income which can be measured in terms of money. In the words Pigou, "the national dividend is that part of the objective income of the community including of course, income derived from abroad which can be measured in money". According to Prof. Pigou, only those goods and services are to be counted, avoiding double counting of course, which are actually exchanged for money. Pigou's definition is practicable and convenient and avoids the difficulties of measuring national dividend inherent in Marshall's definition. But it has

its own short comings. It makes an artificial distinction between the goods that are exchanged. For money and those which are not so exchanged. The bought and un bought goods do not differ in any fundamental manner. Underdeveloped countries marked by a high degree of self sufficiency in households a substantial portion of the production would be excluded since, part of it is on barter basis and not against money. Pigou's definition would exclude even such goods. Thus this definition is not of much use for under developed countries.

3. Fisher's Definition

Fisher adopted „consumption“ as the criterion of national income, whereas Marshall and Pigou regarded „production“. According to Fisher, “The national dividend or income consist solely of services as received by ultimate consumer“s whether from their material or from their human environments. Thus, a piano, or an overcoat made for more this year is not a part of this year's income, but an addition to the capital. Only the services rendered to me during this year by these things are income”. Fisher's definition is considered to be better than that of Marshall or Pigou because Fisher's definition provides an adequate concept of economic welfare which is dependent on consumption and consumption represents our standard of living. It is however, more difficult to have an idea of net consumption than that of the net production. Further it is very difficult to measure the life of durable goods which last beyond one year.

None of the definitions mentioned above suited Keynes because he was interested in knowing the factors which determine the level of income and employment at a particular time. He wanted to know the considerations which the entrepreneurs bear in mind while deciding to employ a particular number of persons. He therefore formulated his own definition to suit his purpose.

Concepts of National Income:

We study below the important concepts of national income, viz., the GNP, NNP, National income Personal income, Disposable income.

Gross National Product

GNP is the market value of all the final goods and services produced by the economy in as given year.

Certain components of GNP are counted. These include the rental value of owner-occupied houses, and the value of goods produced and consumed by forms. GNP includes foreign trade and exchange rates. Certain kinds of services are not

counted, for example housewives services, voluntary community service, Teacher parents their teaching tuition to their children that kind of services are not counted.

Gross Domestic Product (GDP)

GDP is the sum of total value of final goods produced and services provided in a country in one year. This includes the value of produces that are produced in a country for local consumption or for export, but does not include imports from other countries.

GDP is calculated by adding private and public spending, investments, and exports, minus imports and minus value generated by foreign owned companies.

Oxford Dictionary (1996): Defines. GDP as “the total value of goods produced and services provided in a country in one year”.

Net National Product (NNP)

GDP minus the cost of capital goods “Used up” during the accounting period. For purposes of measurement depreciation charges and any other allowances for the consumption of durable capital goods are used to estimate the amount of capital “used up” in the production of a given volume of output.

Defined as “the total value of all final goods and services produced in an economy during the particular year”. The aggregate earnings of labour and property during the accounting period. It is an estimate of total cost of all factors of production during a given year.

Personal Income

A measure of the current income received by all “persons” from all sources. For accounting purposes, nonprofit institutions, private trust funds, and private health (or) welfare funds are classified as “persons” personal income is measured before taxes.

Disposable personal income

The income held by persons after the deduction of all personal taxes and other payments to general government. It is the amount of income available during a given year either for spending on consumption (or) for savings.

Disposable income = Personal income – Personal Taxes = Personal Consumption + Personal Saving

Real Income (RI)

Real income is national income expressed in terms of general level of prices of a particular year taken as base. In order to find out the real income of the country, a particular year is taken as base year when the general price level is neither too high nor too low and the price level for that year is assumed to be 100. Now the general level of the prices of the given year for which the national income (real) is to be determined is asserted in accordance with the prices of the base year. For the purpose the following formula is employed.

$$\text{Real NNP} = \text{NNP for the current year} \times \frac{\text{Base year index}}{\text{current year index}}$$

Per Capita Income

The average income of the individuals of a country in the particular year is called per capita income for the year.

$$\text{Per Capita Income} = \frac{\text{National income}}{\text{Population}}$$

Q.2. Explain about the significance of national income estimates.

Comparison of Real and Nominal Income:

If the national income data for a number of years is available in the form of income and physical product, a comparison between real and nominal or money income can easily be made. This type of comparison will exhibit the trends of economic growth in a decade, a few decades or a century.

Indication of Prosperity:

The national income data is an index of national progress and economic growth. Per capita income can indicate the rise or fall in the standard of living of the people.

Regional Comparison:

National income data and other statistics help us to find out the contribution of a particular region in our total national product. The comparison between different regions will reflect the level of economic development and disparities between various regions.

Reflect Sectoral Contribution:

The economy is generally divided into different sectors and sub-sectors. Through national income statistics, we can obtain a clear picture of the sectoral contribution to

gross national product. This will determine the relative importance of each sector in the economy.

Guide to Economic Planning and Policy Formulation:

We know very well that the government plays an important role in the economy in modern times. Planning has come to stay as an important tool for economic growth. National income data shows its distribution between various sections of the society. Free education, medical aid and social security schemes go a long way to reducing income and inequalities. National income statistics are helpful in formulating necessary plans to develop backward areas and sectors.

Inflationary and Deflationary Gaps:

National income statistics enable us to have an idea of inflationary or deflationary forces in an economy. In fact, inflationary and deflationary gaps are the result of inconsistencies of certain sub totals related to national product and aggregate expenditure. The excess expenditure over the value of available output at the base level of prices will result in an inflationary gap.

Basis of Economic Welfare:

National income analysis reflects the well being of the inhabitants of the country. They enable us to compare the standard of living of the people in different countries or the people living in the same country at different times. We can measure the increase or decrease in the standard of living of the people with the help of national income.

Basis of Economic Policy:

In the era of planning, national income statistics are regarded as a comprehensive tool of economic policy. They throw light on the data pertaining to the country's gross income, output, saving, consumption etc. Without these estimates, planning is almost impossible.

Basis of Economic Structure:

National income statistics enable us to have a detailed knowledge of the economic structure of the country. By this, we can know the contribution made to national income by different sectors like mining, agriculture, industry, trade etc.

Basis of Distribution of National Income:

By national income, we can get data pertaining to wages, profits and interest which enables us to learn about the disparities in income among the different sections of the society.

Basis of Budgetary Policies:

National income statistics enable the government to prepare its budgetary policies. The taxation and borrowing policies can be framed to neutralize the fluctuations in the level of employment.

National Expenditure:

By national income, different departments can get the information on how to divide and use the national expenditure between consumption expenditure and investment expenditure.

International Sphere:

National income statistics play a pioneering role in fixing the burden of international payments among different countries and to determine quotas of different

Distribution of Grants and Aids:

In the federal setup, national income estimates enable the central government to distribute the quantum of grants in aid among the state government and other constituent units.

Facilitates Business Forecasting:

On the basis of national income, producers can do changes in production and marketing mechanisms. Forecasting of long term trends of business activities is also made.

Indicator of Economic Progress:

National income provides information about economic progress, and whether the nation is progressing well on the path of development or not. Countries to international organizations like IMF, IBRD, and UNO.

Q.3. What is national income? Explain about the methods of measuring national income.

(or)

Q.4. What is national income? Analyze the methods of estimating national income.

The national income has been defined by different persons in different ways. There is nothing absolutely right or wrong about any of these definitions. In general, national income means the total value of goods and services produced annually in a country. In other words, the total amount of income accruing from economic activities in a year's time is known as national income. It includes payments made to all resources in the form of wages, interests, rent and profits.

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Methods of calculating National Income:

1. Value added or production or output approach:

1) The output approach focuses on finding the total output of a nation by directly finding the total value of all goods and services a nation produces.

2) Problem of Double counting: Because of the complication of the multiple stages in the production of a good or service, only the final value of a good or service is included in the total output. This avoids an issue often called 'double counting', wherein the total value of a good is included several times in national output, by counting it repeatedly in several stages of production. In the example of meat

production, the value of the good from the farm may be Rs10, then Rs 30 from the butchers, and then Rs 60 from the supermarket. The value that should be included in final national output should be Rs 60, not the sum of all those numbers, Rs 90.

The values added at each stage of production over the previous stage are respectively Rs 10, Rs 20, and Rs 30. Their sum gives an alternative way of calculating the value of final output.

2. Income method:

The income approach equates the total output of a nation to the total factor income received by residents or citizens of the nation. The main types of factor income are:

Employee compensation/ salaries & wages (cost of fringe benefits, including unemployment, health, and retirement benefits);

Interest received net of interest paid;

Rental income (mainly for the use of real estate) net of expenses of landlords; Royalties paid for the use of intellectual property and extractable natural resources. Corporate Profits

3. Expenditure or Consumption method:

The expenditure approach is basically an output accounting method. It focuses on finding the total output of a nation by finding the total amount of money spent. This is acceptable, because like income, the total value of all goods is equal to the total amount of money spent on goods

$$\mathbf{GDP = C + I + G + (X - M)}$$

Where:

C = household consumption expenditures / personal consumption expenditures

I = gross private domestic investment

G = government consumption and gross investment expenditures

X = gross exports of goods and services

M = gross imports of goods and services

Note: **(X - M)** is often written as **XN**, which stands for "net exports"

Short answer questions:

Q.1.Gross national product(GNP)

Gross National Product (GNP) is the total value of all finished goods and services produced by a country's citizens in a given financial year, irrespective of their location. GNP also measures the output generated by a country's businesses located domestically or abroad. It can be defined as a piece of economic statistic that comprises Gross Domestic Product (GDP), and income earned by the residents from investments made overseas.

Simply put, GNP is a superset of the GDP. While GDP confines its analysis of the economy to the geographical borders of the country, GNP extends it to also take account of the net overseas economic activities performed by its residents.

Basically, GNP signifies how a country's people contribute to its economy. It considers citizenship, regardless of the location of the ownership. GNP does not include foreign residents' income earned within the country. GNP also does not count any income earned in India by foreign residents or businesses, and excludes products manufactured in the country by foreign companies.

In calculation, GNP adds government expenditure, personal consumption expenditure, private domestic investments, net exports, and income earned by nationals overseas, and eliminates the income of foreign residents within the domestic economy. Moreover, GNP omits the value of intermediary goods to avoid double counting, as these entries get included in the value of final products and services.

The formula for $GNP = GDP + \text{Net factor income from abroad}$

(or)

$$\mathbf{GNP = C + I + G + X + Z}$$

Where, C is Consumption, I is investment, G is government, X is net exports, and Z is net income earned by domestic residents from overseas investments minus net income earned by foreign residents from domestic investments.

Q.3. Problems in measuring national income estimates.

Six major difficulties faced in the measurement of national income are as follows:

1. Problems of definition, 2. Lack of adequate data, 3. Non availability of reliable information, 4. Choice of method, 5. Lack of differentiation in economic functioning, 6. Double counting.

All the countries face some special difficulties in estimating national income. Some of these difficulties are given below:

1. Problems of Definition:

What should we include in the National Income? Ideally we should include all goods and services produced in the course of the year, but there are some services which are not calculated in terms of money, e.g., services of housewives.

2. Lack of Adequate Data:

The lack of adequate statistical data makes the task of estimation of national income more acute and difficult.

3. Non-availability of Reliable Information:

The reason of illiteracy, most producers has no idea of the quantity and value of their output and do not follow the practice of keeping regular accounts.

4. Choice of Method:

The selection of method while calculating National Income is also an important task. The wrong method leads to poor results.

5. Lack of Differentiation in Economic Functioning:

In all the countries the occupational specialization is still incomplete so that there is a lack of differentiation in economic functioning. An individual may receive income partly from farm ownership and partly from manual work in industry in the slack season.

6. Double Counting:

Double counting is also an important problem while calculating national income. If the value of all goods and services totaled, the total will overtake the national output, because some goods are currently consumed being used in the making of others. The best way to avoid this error is to calculate only the value of those goods and services that enter into final consumption.

