Self-Study Material (OLD)

RKDF UNIVERSITY, BHOPAL
Bachelor of Arts (B.A.)
First Semester

Course	Category	Subject	Subject Code
B.A.	**Major**	**MICRO ECONOMICS**	**BA EC-101**
Total Credit: 6		**Max.Marks:100 (Internal:40+External:60)**	

Course Learning outcomes (CLO):

After completing this course, students will be able to understand rational behaviour and fundamentals of microeconomics. They will be able to explain consumer's and producer's behaviour and their optimum decisions. Students will be able to know about the firms and industry, markets and their decisions about optimum production. They will be also able to explain the theory of distribution and concept of economic welfare. Learning microeconomics is an excellent way to gain an understanding of many factors that affect us in the real world, such as methods of buying goods, product pricing and input pricing, ultimately, learning microeconomics is key in learning about the principles of economics.

Units	Topic	Duration (In Hours)	Marks
I Introduction of Economics	1. Definitions, Scope and Nature of Economics 2. Relation of Economics with other Social Science Subjects 3. Positive and Normative		20

	Economics	18	
	4. Methods of Economics Analysis-Inductive and Deductive methods.		
	5. Basic Concepts- Commodity, Price, Value, Rational Behaviour, Economic Laws, Wants and choices		
	6. Central Problems of An Economy – Production Possibility Curve		
II **Consumer Behaviour**	1. Cardinal Approach – Utility, Magrinal Utility and Total Utility.	19	20
	2. Law of Diminishing Marginal Utility		
	3. Law of Equi-Marginal Utility, Consumer's Surplus		
	4. Ordinal Approach-Indifference curve-Meaning and Characteristics, Consumer's Equilibrium		
	5. Behavioural Approach- Revealed Preference Theory		
	6. Law of Demand and its exceptions- Giffen goods		
	7. Elasticity of Demand-Price, Income and Cross Elasticity		
III **Production**	1. Law of supply and Elasticity of supply	18	20
	2. Production function		
	3. Law of variable proportions		
	4. Returns to scale		
	5.ISO- Product Curve-Meaning and characteristics.		
	6. Producer's Equilibrium		
	7. Economic of Scale		
	8. Concept of Revenue and Cost-Total , Average and Marginal		
IV	1. Meaning and Classification of	18	20

Market and Price Determination	Markets		
	2. Perfect competition-Meaning and characteristics		
	3. Perfect competition and Pure competition.		
	4. Determination of Price and Output under perfect competition		
	5. Determination of Price and Output under Monopoly		
	6. Price Discrimination under Monopoly		
	7. Monopolistic Competition		
V Theory of Factor Pricing	1. Marginal Productivity Theory of Distribution 2. Concept of Welfare Economics	18	20

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MICRO ECONOMICS

Introduction of Economics

Definitions, Scope and Nature of Economics

We all use economics in our day-to-day life. For example, all of us have to make certain choices with the limited money at our disposal. You may spend your money on things like food, house rent, electricity bills and medicines, and somebody else may spend the same amount of money on buying clothes, watching movies and other allied activities. Both spend the same amount of money, but in a different manner. Making such choices is just one activity related to Economics. The fundamental nature of economics is trying to understand how both individuals and nations behave in response to certain material constraints.

Definition of Economics

The various definitions of economics as given by various economists and other sources Simply defined, "Economics is the social science that examines how people make a choice for using their limited or scarce resources in order to satisfy their unlimited wants."

One of the earliest and most famous definitions of Economics was that of Thomas Carlyle, who in the early 19th century termed it the "dismal science." Carlyle believed that population would always grow faster than food and due to this; people will have to face severe poverty and hardship. Carlyle argued that slavery was actually morally superior to the market forces of supply and demand promoted by economists, since, in his view, the freeing up of the labour market by the liberation of slaves had actually led to a moral and economic decline in the lives of the former slaves themselves.

Another early definition, one which is perhaps more useful, is that of English economist W. Stanley Jevons who, in the late 19th century, wrote that economics was "the mechanics of utility and self-interest." One can think of economics as the social science that explores the results of people acting on the basis of self-interest. Psychology, Sociology, Anthropology,

and Political Science – attempt to tell us about those other dimensions of man. The assumption of self-interest, that a person tries to do the best for himself with what he has, underlies virtually all of economic theory.

At the turn of the century, Alfred Marshall's Principles of Economics was the most influential textbook in Economics. Marshall defined Economics as "a study of mankind in the ordinary business of life; it examines that part of individual and social action which is most closely connected with the attainment and with the use of the material requisites of wellbeing. Thus it is on one side a study of wealth; and on the other, and more important side, a part of the study of man."

Many other books of the period included in their definitions something about the "study of exchange and production." Definitions of this sort emphasize that the topics with which economics is most closely identified concern those processes involved in meeting man's material needs. Economists today do not use these definitions because the boundaries of economics have expanded since Marshall. Economists do more than study exchange and production, though exchange remains at the heart of economics. The standard definition is something like this: "Economics is the social science that examines how people choose to use limited or scarce resources in attempting to satisfy their unlimited wants."

The above **definition** has the following characteristics:

1. *Economics is Social Science:* A social science is a systematic body of knowledge that Seeks solutions to the problems of the society, in general. Economics also does this. So it is Considered a social science.

2. *Economics examines how people choose to use scare resources:* We all know that the Resources on this earth are not in abundance. In simpler words, they are only limited. They Will get over after some time. So, people have to use them very carefully.

3. *Human wants are unlimited:* one want gets satisfied, another one comes up. There is no Limit to our wants.

Scope of Economics

Economics is concerned with the application of economic concepts and analysis to the problem of formulating rational individual and national decisions. There are four groups of problem in both decision making and forward planning.

1. **Resource allocation:** Scarce resources have to be used with utmost efficiency to get optimal results. These include production planning, problem of transportation, etc.

2. **Inventory and queuing problem:** Inventory problems involve decisions about holding of optimal levels of stocks of raw materials and finished goods over a period. These decisions are taken by considering demand and supply conditions. Queuing problems involve decisions about installation of additional machines or hiring of extra labour in order to balance the business lost by not undertaking these activities.

3. **Pricing problems***:* Fixing prices for the products of the firm is an important part of the decision making process. Pricing problems involve decisions regarding various methods of pricing to be adopted.

4. **Investment problems:** Forward planning involves investment problems. These are problems of allocating scarce resources over time. For example, investing in new plants, how much to invest, sources of funds, etc.

Study of economics essentially involves the analysis of certain major subjects like:

1. Demand analysis and methods of forecasting
2. Cost analysis
3. Pricing theory and policies
4. Profit analysis with special reference to break-even point
5. Capital budgeting for investment decisions
6. The business firm and objectives
7. Competition.

Nature of Economics

Economics is a social science which deals with economic activities of people. People have unlimited wants, but the resources required to satisfy these wants are limited. Scarcity of resources in the presence of unlimited wants gives rise to all economic activities. If the resources were not scarce, there would not be any economic activity at all. With unlimited resources, a person could get as much as he would like to have without any work. Economics is rightly called the study of the allocation of resources for satisfying human wants.

MICROECONOMICS AND MACROECONOMICS

Traditionally, the subject matter of economics has been studied under two broad branches: Microeconomics and Macroeconomics. In microeconomics, we study the behaviour of individual economic agents in the markets for different goods and services and try to figure out how prices and quantities of goods and services are determined through the interaction of individuals in these markets. In macroeconomics, on the other hand, we try to get an understanding of the economy as a whole by focusing our attention on aggregate measures such as total output, employment and aggregate price level. Here, we are interested in finding out how the levels of these aggregate measures are determined and how the levels of these aggregate measures change over time.

Relation of Economics with other Social Science Subjects

Economics is a social science which deals with human wants and their satisfaction. It is related to other social sciences like sociology, politics, history, ethics, jurisprudence and psychology. For example, the economic development of a nation depends not only on economic factors but also on historical, political and sociological factors. Our country did not have much of economic progress during the British rule owing to historical reasons. Again, we had slow but steady economic growth in our country because of political stability. But in many other countries, there was no steady growth because of political instability. If there is one government today and another government tomorrow, there will not be economic development in that country.

Economics and Sociology

Sociology is the science of society. Social sciences like politics and economics may be considered as the branches of sociology. Sociology is a general social science. It attempts to discover the facts and laws of society as a whole. Sociology deals with all aspects of society. But economics deals only with the economic aspects of a society. It studies human behaviour in relation to scarce means and unlimited wants. For a student of sociology, social institutions like marriage, religion, political institutions and economic conditions are all important subjects for study. But in economics, we are interested in them only to the extent that they affect the economic life of a society. And we cannot properly understand the economic conditions of a society without considering its sociological aspects. Though

economics is a branch of sociology, we must look at it as a separate and distinct branch.

Economics and Politics

Both economics and politics are social sciences and there is a close connection between them. Politics is the science of the State or political society. It studies about man in his relation to the State. The production and distribution of wealth are influenced to a very great extent by the government. We have economic planning in our country. And the main aim of planning is to increase the national income by increasing production and by a proper distribution of income.

The Planning Commission, which is an agency of the government, plays a vital role in it. Some of the important questions like nationalization, privatization and prohibition are all economic as well as political questions. Elections are fought often in many countries on economic issues. Unemployment, labour disputes are all economic issues. But government has to tackle them. The relationship between economics and politics is so great that the early economists described economics as political economy.

Sometimes, political ideas and institutions are influenced by economic conditions. For example, socialism was born of economic inequalities and exploitation in England during the industrial revolution. Karl Marx is considered as the Father of (scientific) socialism.

Economics and History

Economics and history are closely related. History is a record of the past events. In history, we survey economic, political and social conditions of the people in the past. To a student of history, love affairs, marriages and even murders of kings are important subjects of study. For example, the murder of Julius Caesar is important for a student of Roman history. In our country, the religious policy of Mughal emperors is important for a student of history. But we are interested in history only to the extent that it will help us in understanding economic problems of the past.

As students of economics, we are interested in things like taxation and other sources of revenue and standard of living in the past.

In economics, we make use of historical data to formulate economic laws. We make use of history in economics to study the material conditions of people in the past. There is a

separate branch of economics known as 'Economic History'. We may say economics is the fruit of history and history in the root of economics:

'Economics without history has no root;
 History without economics has no fruit'.

Economics and psychology

Psychology is the science of mind. It deals with all kinds of human behaviour. For example, we have child psychology, mob psychology, industrial psychology and criminal psychology. But economics studies one aspect of human behaviour. It studies human behaviour with reference to unlimited wants and limited means. Of late, psychology has become important in analyzing economic problems. To deal with labour problems, we must understand industrial psychology. And a good businessman must understand the psychology of buyers whenever he wants to change the price of his good. Many important laws of economics are based on psychology. For example, we have the law of diminishing marginal utility. It tells that the more and more of a thing you have, the less and less you want it.

Economics and Ethics

Ethics is a social science. It deals with moral questions. It discusses the rules that govern right conduct and morality. It deals with questions of right and wrong. It aims at promoting good life.

There is connection between economics and ethics. While economics, according to Marshall, aims at promoting material welfare, ethics aims at promoting moral welfare. When we discuss economic problems, often we consider ethical issues. The government introduced prohibition in many states for ethical reasons, though there was heavy loss of revenue to it.

But Lionel Robbins strongly believes that an economist as an economist should not consider ethical aspects of economic problems. But many economists do not agree with him. They believe that economics cannot be dissociated from ethics. Even Marshall considered economics as a handmaid of ethics. He looked at economics as a study of means to better the conditions of human life.

Positive and Normative Economics

1. POSITIVE economics is concerned with what is;
2. NORMATIVE economics is concerned with what should be.

It was mentioned earlier that in principle there are more than one ways of solving the central problems of an economy. These different mechanisms in general are likely to give rise to different solutions to those problems, thereby resulting in different allocations of the resources and also different distributions of the final mix of goods and services produced in the economy. Therefore, it is important to understand which of these alternative mechanisms is more desirable for the economy as a whole. In economics, we try to analyse the different mechanisms and figure out the outcomes which are likely to result under each of these mechanisms. We also try to evaluate the mechanisms by studying how desirable the outcomes resulting from them are. Often a distinction is made between positive economic analysis and normative economic analysis depending on whether we are trying to figure out how a particular mechanism functions or we are trying to evaluate it. In positive economic analysis, we study how the different mechanisms function, and in normative economics, we try to understand whether these mechanisms are desirable or not. However, this distinction between positive and normative economic analysis is not a very sharp one. The positive and the normative issues involved in the study of the central economic problems are very closely related to each other and a proper understanding of one is not possible in isolation to the other.

Methods of Economics Analysis- Inductive and Deductive methods.

Analysis refers to studying a given topic in detail. Economic analysis refers to the investigation of a particular topic from the perspective of an economist. It includes conducting an in-depth study of various processes such as production, consumption, consumer behaviour, national income, employment and others. It evaluates the given industry in detail with all the aspects associated with that particular industry. Moreover, the primary aim of economic analysis is to determine the effectiveness of operations within an economy. There are two types of economic study or economic analysis: Deductive Method and Inductive Method. Here, we take a look at these methods and also present an overview of the process of making the hypothesis.

Economic generalisations describe the laws or statements of tendencies in various branches of economics such as production, consumption, exchange and distribution of income. In the view of Robbins, economic generalisations or laws are statements of uniformities which describe human behaviour in the allocation of scarce resources between alternative ends.

The generalisations of economics like the laws of other sciences, state cause and effect relationships between variables and describe those economic hypotheses which have been found consistent with facts or, in other words, have been found to be true by empirical evidence. But a distinction may be drawn between a generalisation (law) and a theory. A law or generalisation just describes the relationship between variables; it does not provide any explanation of the described relation. On the other hand, a theory provides an explanation of the stated relation between the variables, that is, it brings out the logical basis of the generalisation. An economic theory or a model derives a generalisation through process of logical reasoning and explains the conditions under which the stated generalisation will hold true.

Deductive Method

Generalisations in economics have been derived in two ways:
(1) Deductive Method,

(2) Inductive Method.

The deductive method is also called abstract, analytical and a priori method and represents an abstract approach to the derivation of economic generalisations and theories.

The principal steps in the process of deriving economic generalisations through deductive logic are:

(1) Selecting the problem:
The problem which an investigator selects for enquiry must be stated clearly. It may be very wide like poverty, unemployment, inflation, etc. or narrow relating to an industry. The narrower the problem the better it would be to conduct the enquiry.

(2) Formulating Assumptions:

The next step in deduction is the framing of assumptions which are the basis of hypothesis. To be fruitful for enquiry, the assumption must be general. In any economic enquiry, more than one set of assumptions should be made in terms of which a hypothesis may be formulated.

(3) Formulating Hypothesis:

The next step is to formulate a hypothesis on the basis of logical reasoning whereby conclusions are drawn from the propositions. This is done in two ways: First, through logical deduction. If and because relationships (p) and (q) all exist, then this necessarily implies that relationship (r) exists as well. Mathematics is mostly used in these methods of logical deduction.

(4) Testing and Verifying the Hypothesis:

The final step in the deductive method is to test and verify the hypothesis. For this purpose, economists now use statistical and econometric methods. Verification consists in confirming whether the hypothesis is in agreement with facts. A hypothesis is true or not can be verified by observation and experiment. Since economics is concerned with human behaviour, there are problems in making observation and testing a hypothesis.

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.

Basic Concepts- Commodity, Price, Value, Rational Behaviour, Economic Laws, Wants and choices

Rational Behavior

Rational behavior refers to a decision-making process that is based on making choices that result in the optimal level of benefit or utility for an individual. The assumption of rational behavior implies that people would rather take actions that benefit them versus actions that are neutral or harm them. Most classical economic theories are based on the assumption that all individuals taking part in an activity are behaving rationally.

Understanding Rational Behavior

Rational behavior is the cornerstone of rational choice theory, a theory of economics that assumes that individuals always make decisions that provide them with the highest amount of personal utility. These decisions provide people with the greatest benefit or satisfaction given the choices available. Rational behavior may not involve receiving the most monetary or material benefit, because the satisfaction received could be purely emotional or non-monetary.

Behavioral Economics

Behavioral economics is a method of economic analysis that considers psychological insights to explain human behavior as it relates to economic decision-making. According to rational choice theory, the rational person has self-control and is unmoved by emotional factors. However, behavioral economics acknowledges that people are emotional and easily distracted, and therefore, their behavior does not always follow the predictions of economic models. Psychological factors and emotions influence the actions of individuals and can lead them to make decisions that may not appear to be entirely rational.

Behavioral economics seeks to explain why people make certain decisions about how much to pay for a cup of coffee, whether or not to pursue a college education or a healthy lifestyle, and how much to save for retirement, among other decisions that most people have to make at some point in their life.

Investors may also make decisions primarily based on emotions, for example, investing in a company for which the investor has positive feelings, even if financial models suggest the investment is not wise.

Wants

Wants are the unlimited desires or wishes that people have for goods and services. Every person wants to get more and more of goods and services. A person who has a bicycle likes to get a motorcycle. When he/she gets a motorcycle, she/he wants to have a private car, and so on. Wants are always unlimited. In these circumstances, a question arises: can people meet all of their wants? The answer is NO. Why? Because, resources are limited.

Need

Need for a commodity refers to the necessity of the commodity to sustain life. For example, if you tell your friend that you need three tickets for watching a movie if the price is Tk. 30.00 per ticket, it would be easy for your friend to disagree with your statement. She/he could argue that you did not need any movie tickets because watching movie was not necessary to sustain life. But if you say that you want three movie tickets, then it's all right - it cannot be disputed. You can rightly say that you need a glass of water to quench your thirst. In this lesson, we are

concerned with *wants,* not *needs* because, demand reflects only *wants*

Central Problems of an Economy – Production Possibility Curve

CENTRAL PROBLEMS OF AN ECONOMY

Production, exchange and consumption of goods and services are among the basic economic activities of life. In the course of these basic economic activities, every society has to face scarcity of resources and it is the scarcity of resources that gives rise to the problem of choice. An analysis of scarcity of resources and choice making poses three basic questions:

1. What to produce and how much to produce?
2. How to produce?
3. For whom to produce?

What is produced and in what quantities?

Every society must decide on how much of each of the many possible goods and services it will produce. Whether to produce more of food, clothing, housing or to have more of luxury goods. Whether to have more agricultural goods or to have industrial products and services. Whether to use more resources in education and health or to use more resources in building military services. Whether to have more of basic education or more of higher education. Whether to have more of consumption goods or to have investment goods (like machine) which will boost production and consumption tomorrow.

How are these goods produced?

Every society has to decide on how much of which of the resources to use in the production

of each of the different goods and services. Whether to use more labour or more machines. Which of the available technologies to adopt in the production of each of the goods?

For whom are these goods produced?

Who gets how much of the goods that are produced in the economy? How should the produce of the economy be distributed among the individuals in the economy? Who gets more and who gets less? Whether or not to ensure a minimum amount of consumption for everyone in the economy. Whether or not elementary education and basic health services should be available freely for everyone in the economy.

 Thus, every economy faces the problem of allocating the scarce resources to the production of different possible goods and services and of distributing the produced goods and services among the individuals within the economy. The allocation of scarce resources and the distribution of the final goods and services are the central problems of any economy.

The Production Possibilities Frontier

Just as individuals cannot have everything they want and must instead make choices, society as a whole cannot have everything it might want, either. This section of the chapter will explain the constraints society faces, using a model called the **production possibilities frontier (PPF)**. There are more similarities than differences between individual choice and social choice. There are more similarities than differences between individual choice and social choice.
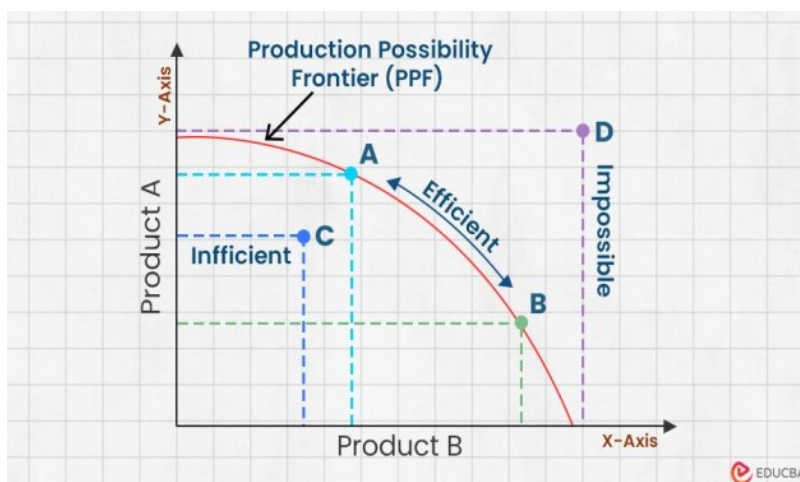
An allocation of the scarce resource of the economy gives rise to a particular combination of different goods and services. Given the total amount of resources, it is possible to allocate

the resources in many different ways and, thereby achieving different mixes of all possible goods and services. The collection of all possible combinations of the goods and services that can be produced from a given amount of resources and a given stock of technological knowledge is called the production possibility set of the economy.

Consumer Behaviour

Cardinal Approach - Utility, Marginal Utility and Total Utility

Meaning of Utility: - its economic meaning, the term *utility* refers to the benefit or satisfaction or pleasure a person gets from the consumption of a commodity or service. In abstract sense, *utility* is the power of a commodity to satisfy human want, i.e., *utility* is want-satisfying power. A commodity is likely to have utility if it can satisfy a want. For example, rice has the power to satisfy hunger; water quenches our thirst; books fulfill our desire for having knowledge, and so on.
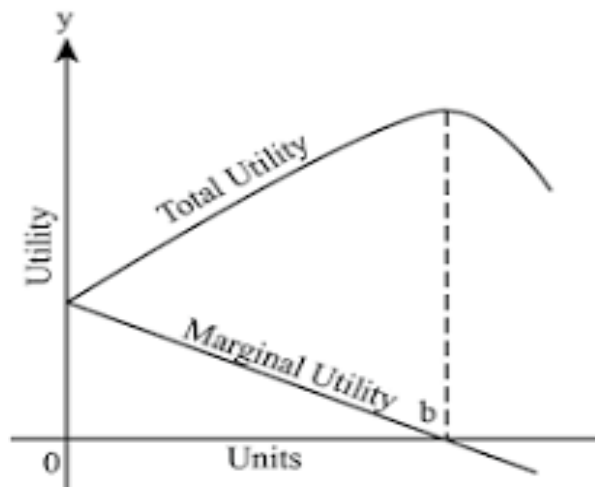
The Cardinal Utility Approach

Cardinal Utility Analysis:-   Cardinal utility analysis assumes that level of utility can be expressed in numbers. For example, we can measure the utility derived from a shirt and say, this shirt gives me 50 units of utility. Before discussing further, it will be useful to have a look at two important measures of utility.

 Measures of Utility

Total Utility: Total utility of a fixed quantity of a commodity (TU) is the total satisfaction derived from consuming the given amount of some commodity x. More of commodity x provides more satisfaction to the consumer. TU depends on the quantity of the commodity consumed. Therefore, TU_n refers to total utility derived from consuming n units of a commodity x.
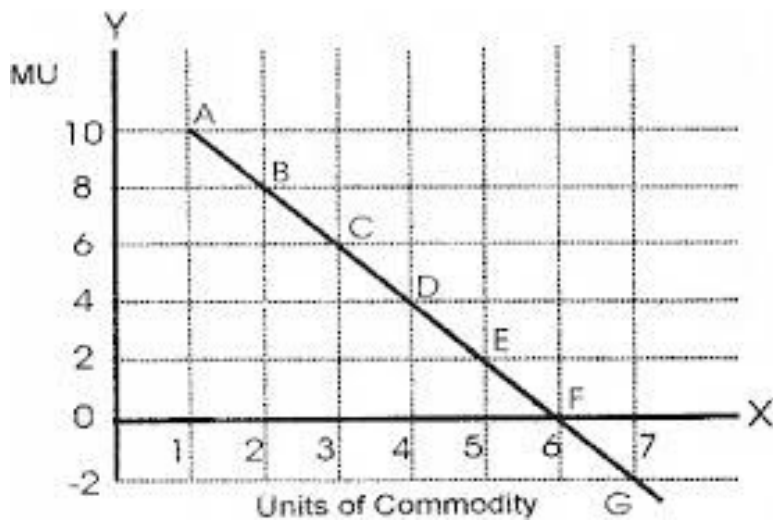
Marginal Utility:- Marginal utility (MU) is the change in total utility due to consumption of one additional unit of a commodity. For example, suppose 4 bananas give us 28 units of total utility and 5 bananas give us 30 units of total utility. Clearly, consumption of the 5th banana has caused total utility to increase by 2 units (30 units minus 28 units). Therefore, marginal utility of the 5th banana is 2 units. $MU_5 = TU_5 - TU_4 = 30 - 28 = 2$ In general, $MU_n = TU_n - TU_{n-1}$, where subscript n refers to the n th unit of the commodity Total utility and marginal utility can also be related in the following way. $TU_n = MU_1 + MU_2 +$

… + MUn-1 + MUn This simply means that TU derived from consuming n units of bananas is the sum total of marginal utility of first banana (MU1), marginal utility of second banana (MU2), and so on, till the marginal utility of the n th unit.

The Law of Diminishing Marginal Utility

This law is the main instrument used in the cardinal utility analysis of the consumer behavior. It explains why the demand curve of a specific commodity is downward sloping? It also explains the elasticity of demand for a product. Except these, there are many other applications of this law in our everyday life.

Law of Diminishing Marginal Utility

Main theme of the law

The additional units of a specific commodity are worth less and less to a consumer as more of the commodity she/he consumes. Law of Diminishing Marginal Utility states that marginal utility from consuming each additional unit of a commodity declines as its consumption increases, while keeping consumption of other commodities constant. MU becomes zero at a level when TU remains constant. In other words, marginal utility of a specific commodity declines as more of it is consumed.

Law of Equi-Marginal Utility, Consumer's Surplus

Law of Equi-Marginal Utility

This law is based on the principle of obtaining maximum satisfaction from a limited income. It explains the behavior of a consumer when he consumes more than one commodity.

The law states that a consumer should spend his limited income on different commodities in such a way that the last rupee spent on each commodity yield him equal marginal utility in order to get maximum satisfaction.

Suppose there are different commodities like A, B, …, N. A consumer will get the maximum satisfaction in the case of equilibrium i.e.,

$$MU_A / P_A = MU_B / P_B = \ldots = MU_N / P_N$$

Where MU's are the marginal utilities for the commodities and P's are the prices of the commodities.

Assumptions of the Law

- There is no change in the price of the goods or services.

- The consumer has a fixed income.

- The marginal utility of money is constant.

- A consumer has perfect knowledge of utility.

- Consumer tries to have maximum satisfaction.

- The utility is measurable in cardinal terms.

- There are substitutes for goods.

- A consumer has many wants.

Ordinal Approach-Indifference curve- Meaning and Characteristics, Consumer's Equilibrium

The Concept of Ordinal Utility

The word **ordinal** is synonymous to the word **rank.** We know that rank is not a quantity; rather it indicates the position of something in a group in terms of magnitude or satisfaction or any other attributes. The **ordinal utility** is the expression of the consumer's preference for one commodity over another or one basket of goods over another, but not a numerical figure of utility derived from different commodities or baskets. So, *ordinal utility analysis* is a more advanced explanation of consumer behavior than *cardinal utility analysis.*

Let's now discuss *indifference curve analysis* which is based on the ordinal utility concept.

Indifference Curve Analysis

Two geometric devices are used in this analysis: **indifference curves** and **budget lines.** Both of them are the locus of various combinations of two commodities. However, the first one is concerned with those combinations from which the consumer gets same satisfaction or she/he is indifferent among them, while the second one is concerned with such combinations or bundles which she/he can afford by spending the same amount of money.
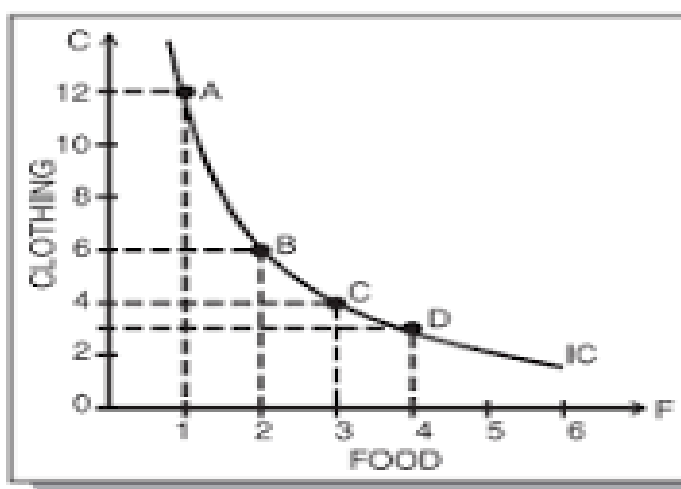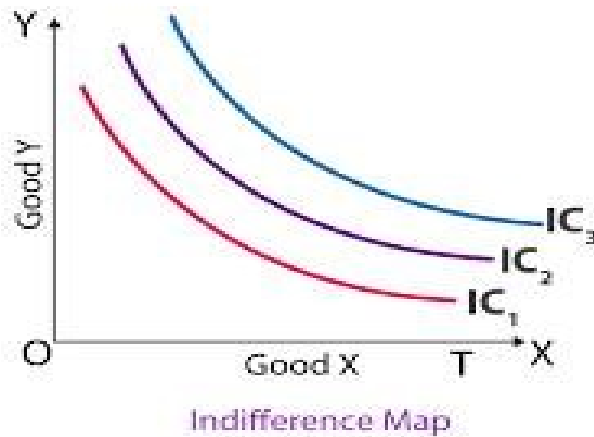

Fig. 1 : A Consumer's Indifference Curv

Indifference Map

Indifference Curve: What the Consumer Prefers

An indifference curve is the locus of points which indicates various combinations of two commodities that yield the same level of satisfaction or utility to the consumer. So, the indifference curves embody subjective information about consumer preferences for two commodities.

Properties of the indifference curve

The indifference curve has the following basic properties:

Downward sloping: The indifference curve is downward sloping, which implies that: the two commodities can be substituted for each other; and if quantity of one commodity decreases, quantity of the other commodity must increase if the consumer has to stay at the same level of satisfaction. Technically, the slope of the indifference curve is called the *Marginal Rate of Substitution (MRS),* because it shows the rate, at the margin, at which the consumer will substitute one good for the other to remain equally satisfied.

Convex to the origin: Downward slope is the necessary, not sufficient, property of the indifference curve. As viewed from the origin, a downward sloping curve can be concave (bowed outward) or convex (bowed inward). The indifference curve is convex to the origin, which means that slope of the indifference curve, the marginal rate of substitution, diminishes as we move down the curve. The diminishing slope of the indifference curve means the willingness to substitute one commodity (orange) for the other (Apple) diminishes as one move down the curve.

Indifference curves do not intersect nor be tangent to one another: By definition, we know that along an indifference curve the consumer's satisfaction remains the same. If indifference curves intersect, the point of their intersection would imply two different levels of satisfaction, which is impossible.

Upper indifference curves represent higher level of satisfaction than the lower ones: The further away from the origin an indifference curve lies, the higher the level of utility it denotes. Bundles of commodities on an upper indifference contain a larger quantity of one or both of the commodities than the lower indifference curve. Thus bundles of commodities on a higher indifference curve are more preferred by the rational consumer

Behavioural Approach- Revealed Preference Theory

Revealed preference, a theory offered by American economist Paul Anthony Samuelson in 1938, states that consumer behavior, if their income and the item's price are held constant, is the best indicator of their preferences. Revealed preference theory works on the assumption that consumers are rational.

The theory entails that if a consumer purchases a specific bundle of goods, then that bundle is "revealed preferred," given constant income and prices, to any other bundle that the consumer could afford. By varying income or prices or both, an observer can infer a representative model of the consumer's preferences.

Much of the explanation for consumer behaviour, particularly consumer choice, is rooted in the concept of utility developed by the English philosopher and economist Jeremy Bentham. Utility represents want (or desire) satisfaction, which implies that it is subjective, individualized, and difficult to quantify. By the early 20th century, substantial problems with the use of the concept had been identified, and many proposed theoretical replacements struggled with the same critiques. As a result, Samuelson offered what became known as revealed preference theory in an attempt to build a theory of consumer behaviour that was not based on utility. He argued that his new approach was based on observable behaviour and that it relied on a minimal number of relatively uncontroversial assumptions.

As revealed preference theory developed, three primary axioms were identified: the weak, strong, and generalized axioms of revealed preference. The weak axiom indicates that, at given prices and incomes, if one good is purchased rather than another, then the consumer will always make the same choice. Less abstractly, the weak axiom argues that if a consumer purchases one particular type of good, then the consumer will never purchase a different brand or good unless it provides more benefit—by being less expensive, having better quality, or providing increased convenience. Even more directly, the weak axiom indicates that consumers will purchase what they prefer and will make consistent choices.

The strong axiom essentially generalizes the weak axiom to cover multiple goods and rules out certain inconsistent chains of choices. In a two-dimensional world (a world with only two goods between which consumers choose), the weak and strong axioms can be shown to be equivalent.

While the strong axiom characterizes the implications of utility maximization (*see* expected utility), it does not address all the implications—namely, there may not be a unique maximum. The generalized axiom covers the case when, for a given price level and income, more than one consumption bundle satisfies the same level of benefit. Expressed in utility terms, the generalized axiom accounts for circumstances where there is no unique bundle that maximizes utility.

The two most-distinguishing characteristics of revealed preference theory are as follows: (1) it offers a theoretical framework for explaining consumer behaviour predicated on little more than the assumption that consumers are rational, that they will make choices which advance their own purposes most efficiently, and (2) it provides necessary and sufficient conditions, which can be empirically tested, for observed choices to be consistent with utility maximization.

Law of Demand and its exceptions - Giffen goods

Demand

We studied the choice problem of the consumer and derived the consumer's optimum bundle given the prices of the goods, the consumer's income and her preferences. It was observed that the amount of a good that the consumer chooses optimally, depends on the price of the good itself, the prices of other goods, the consumer's income and her tastes and preferences.

The quantity of a commodity that a consumer is willing to buy and is able to afford, given prices of goods and consumer's tastes and preferences is called demand for the commodity. Whenever one or more of these variables change, the quantity of the good chosen by the consumer is likely to change as well. Here we shall change one of these variables at a time and study how the amount of the good chosen by the consumer is related to that variable.

Law of Demand

Law of Demand states that other things being equal, there is a negative relation between demand for a commodity and its price. In other words, when price of the commodity increases, demand for it falls and when price of the commodity decreases, demand for it rises, other factors remaining the same.

A basic economic hypothesis about the relationship between price and quantity demanded is as: "Other things remaining the same, the higher the price of a commodity, the smaller the quantity demanded and the lower the price of a commodity, the higher the quantity demanded." Economists call this relationship the

Law of demand. Here, *other things* indicate the determining factors of quantity demanded other than commodity's own price.
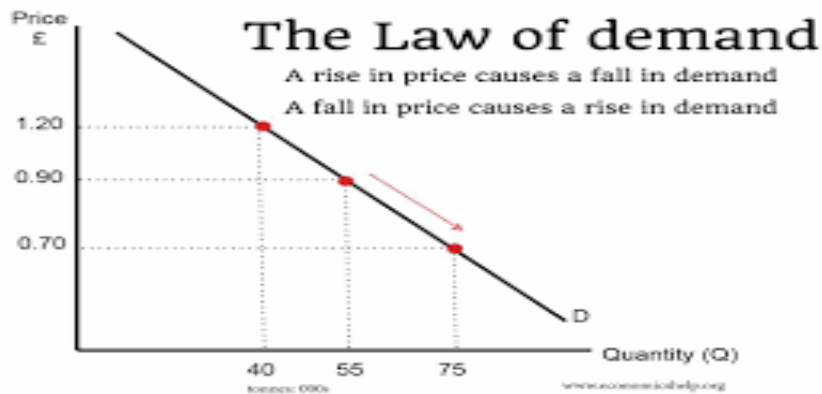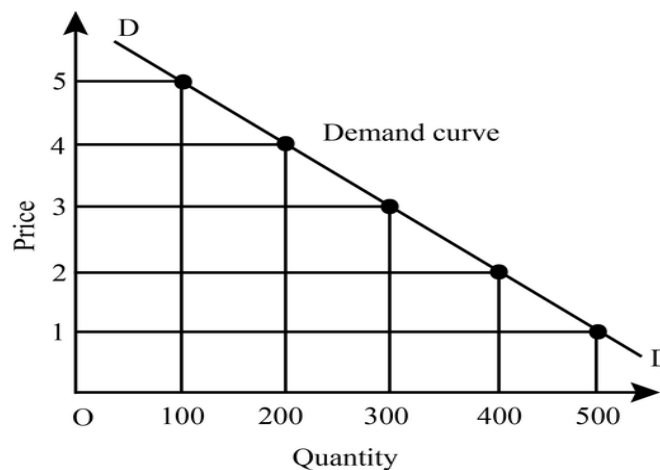
Giffen Goods. An exception to this law is also the classic case of Giffen Goods named after Robert Giffen (1837-1910). A Giffen Good does not mean any specific commodity. It may be any commodity much cheaper than its substitutes, consumed mostly by the poor households claiming a large part of their incomes. If price of such a good increases (price of its substitute remaining constant), its demand increases instead of decreasing.

A rise in the purchasing power (income) of the consumer can sometimes induce the consumer to reduce the consumption of a good. In such a case, the substitution effect and the income effect will work in opposite directions. The demand for such a good can be inversely or positively related to its price depending on the relative strengths of these two opposing effects. If the substitution effect is stronger than the income effect, the demand for the good and the price of the good would still be inversely related. However, if the income effect is stronger than the substitution effect, the demand for the good would be positively related to its price. Such a good is called a *Giffen good.*

The quantity of a good that the consumer demands can increase or decrease with the rise in income depending on the nature of the good. For most goods, the quantity that a consumer chooses, increases as the consumer's income increases and decreases as the consumer's

income decreases. Such goods are called **normal goods**. Thus, a consumer's demand for a normal good moves in the same direction as the income of the consumer. However, there are some goods the demands for which move in the opposite direction of the income of the consumer. Such goods are called **inferior goods**. As the income of the consumer increases, the demand for an inferior good falls, and as the income decreases, the demand for an inferior good rises. Examples of inferior goods include low quality food items like coarse cereals.

Elasticity of Demand-Price, Income and Cross Elasticity

What Is Elasticity?

Elasticity is the ratio which measures the responsiveness or sensitiveness of a dependent variable to the changes in any of the independent variables. Specifically, the term *elasticity* refers to the percentage change in dependent variable divided by the percentage change in independent variable. That is,

If Y = f (X), i.e., Y depends on X, then the elasticity of Y with respect to X is as follows:

Percentage change in Y %ΔY

Elasticity of Y = ----------------------------- = ----------

Percentage change in X %ΔX

If Y = f (X1, X2... Xn), then we can calculate elasticity of Y with respect all X's, which is called total elasticity, as follows:

or we can calculate the elasticity of Y with respect to each of the X's, which is called partial *Elastici*ty.

Price Elasticity of Demand

Price elasticity of demand is the ratio of the percentage change in quantity demanded of a product to the percentage change in price. Economists employ it to understand how supply and demand change when a product's price changes.

Types of Price Elasticity of Demand

If the percentage change in quantity demanded divided by the percentage change in price equals:	It is known as:	Which means:
Infinity	Perfectly elastic	Changes in price result in demand declining to zero
Greater than 1	Elastic	Changes in price yield a significant change in demand
1	Unitary	Changes in price yield equivalent (percentage) changes in demand
Less than 1	Inelastic	Changes in price yield an insignificant change in demand
0	Perfectly inelastic	Changes in price yield no change in demand

$$PED = abs\left[\frac{\%\Delta \text{ Quantity Demanded}}{\%\Delta \text{ Price}}\right]$$

$$\%\Delta\ Q_d = \frac{Q_1 - Q_0}{(Q_1 - Q_0)/2} \qquad \%\Delta\ P = \frac{P_1 - P_0}{(P_1 - P_0)/2}$$

Income elasticity

Income elasticity of demand refers to the sensitivity of the quantity demanded for a certain good to a change in the real income of consumers who buy this good.

The formula for calculating income elasticity of demand is the percent change in quantity demanded divided by the percent change in income. With income elasticity of demand, you can tell if a particular good represents a necessity or a luxury.

Income elasticity of demand measures the responsiveness of demand for a particular good to changes in consumer income.

Income Elasticity of Demand Formula

$$\text{Income Elasticity of Demand} = \frac{\text{Percentage Change in Quantity Demand } (\triangle D/D)}{\text{Percentage Change in Income } (\triangle I/I)}$$

$$\text{Income Elasticity of Demand} = \frac{(D_1 - D_0) / (D_1 + D_0)}{(I_1 - I_0) / (I_1 + I_0)}$$

The higher the income elasticity of demand for a particular good, the more demand for that good is tied to fluctuations in consumers' income. Businesses typically evaluate the income elasticity of demand for their products to help predict the impact of a business cycle on product sales.

Cross price elasticity

The cross price elasticity of demand refers to how responsive or elastic the demand for one product is with the response to the change in price of another product. In other words, the cross price elasticity of demand tracks the relationship between price and demand.

By calculating cross price elasticity, it can be determined if the products are substitutes, complements, or are not related to each other.

In such a situation, if the products are substitutes of each other, then a positive cross elasticity of demand is observed, while if the products are complements of each other, then a negative cross elasticity of demand is observed.

Industry and business owners use this information for determining the price for certain products.

The cross price elasticity of demand formula is expressed as follows:

Cross price elasticity of demand (XED) = (ΔQX/QX) ÷ (ΔPY/PY)

Where,

QX = Quantity of product X

PY = Price of the product

Δ = Change in the quantity demanded/price

From this formula, the following can be deduced.

If XED > 0, then the products are substitutes of each other.

If XED < 0, then the products are complements of each other

If XED = 0, then the products are not related to each other.

Cross Elasticity Demand

$$XED = \frac{\text{Percentage Change in the Quantity Demanded of Good A}}{\text{Percentage Change in the Price of Good B}}$$

$$= \frac{\%\Delta \text{ QD of Good A}}{\%\Delta \text{ P of Good B}}$$
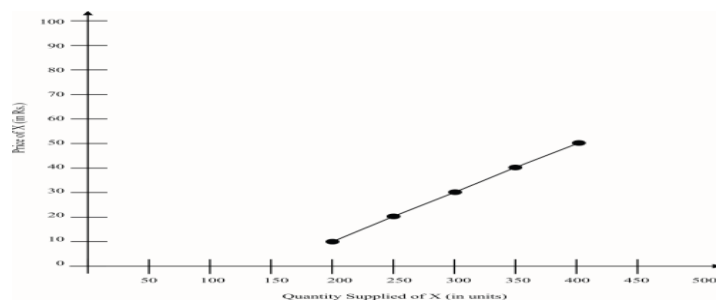
Production

Law of supply and Elasticity of supply

Supply is a schedule which shows the amounts of a product a producer is willing and able to produce and make available for sale at each price in a series of possible prices during a specified period. The amount the firms are willing to sell (desired sales) may not be the same as the amount they succeed in selling. Desired sales many not be equal to the actual sales.

Law of Supply

According to the Law of Supply, other things remaining constant, higher the price of a commodity, higher will be the quantity supplied and vice versa. There is a positive relationship between supply and price of a commodity.

The law of supply also assumes that other things are held constant. Other variables, like price of inputs used in production, technology, producers' expectations and number of producers in the market, might change, causing a shift in supply.

Production function

A production function is a function that specifies the output of a firm, an industry, or an entire economy for all combinations of inputs. In other words, it shows the functional relationship between the inputs used and the output produced. The production function of a firm is a relationship between inputs used and output produced by the firm. For various quantities of inputs used, it gives the maximum quantity of output that can be produced.

One possible example of the form this could take is:

$q = K \times L$,

Where, q is the amount of wheat produced, K is the area of land in hectares, L is the number of hours of work done in a day. Describing a production function in this manner tells us the exact relation between inputs and output. If either K or L increase, q will also increase. For any L and any K, there will be only one q. Since by definition we are taking the maximum output for any level of inputs, a production function deals only with the efficient use of inputs. Efficiency implies that it is not possible to get any more output from the same level of inputs. A production function is defined for a given technology. It is the technological knowledge that determines the maximum levels of output that can be produced using different combinations of inputs. If the technology improves, the maximum levels of output

obtainable for different input combinations increase. We then have a new production function.

Law of variable proportions

If all inputs of a firm are fixed and only the amount of labour services differs, then any decrease or increase in output is achieved with the help of changes in the amount of labour services used. When the firm changes the amount of labour services only, it changes the proportion between the fixed input and the variable input. As the firm keeps on changing this proportion by changing the This law states that, As more and more of the factor input is employed, all other input quantities remaining constant, a point will finally be reached where additional quantities of varying input will produce diminishing marginal contributions to total product.
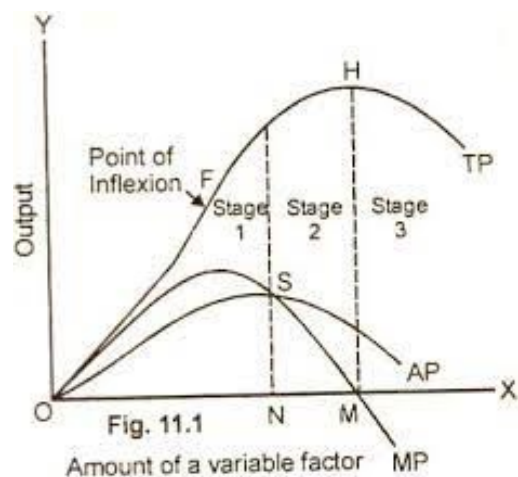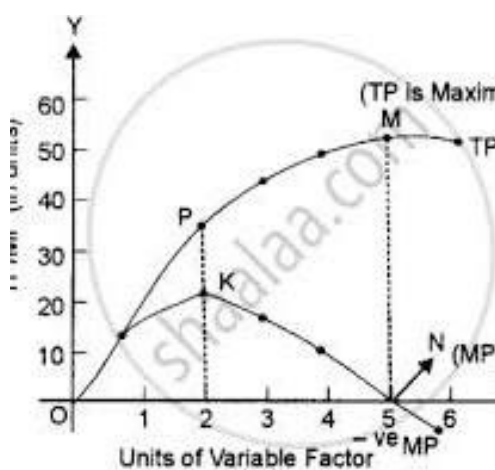

MP begins to fall before the AP does. The reason is that the AP attributes the increase in TP equally to all the units of the variable factor whereas the MP, by definition, attributes the increase in TP to the marginal unit of the variable factor. If the MP is greater than the AP, the AP rises and if the MP is less than the AP, then the AP falls.

Returns to scale all inputs are changed at the same time (possible only in the long run), and suppose are increased proportionately, then the concept of returns to scale has to be used to understand the behaviour of output. The behaviour of output is studied when all factors of production are changed in the same direction and proportion. In the long run, output can be increased by increasing the 'scale of operations'. When we speak of increasing the 'scale of operations' we mean increasing all the factors at the same time and by the same proportion.

Producer's Equilibrium

Producer's equilibrium is the output where the producer gets maximized profits. So a producer can reach a producer's equilibrium if his profits are at their highest levels. An organization is in equilibrium if there is no scope for either increasing the profit or reducing its loss by changing the quality of the output. A producer is said to be in equilibrium when it is producing a level of output at which his profit is maximum. Profits are defined as the difference between total revenue (TR) and total cost (TC). Thus, Profit = TR - TC. Profits will be maximum when the difference between total revenue and total cost is maximum. The difference between total revenue and total cost is maximum at the level of output where the slope of TR curve = slope of TC curve. The diagram illustrates the equilibrium of a firm using TR and TC curves.
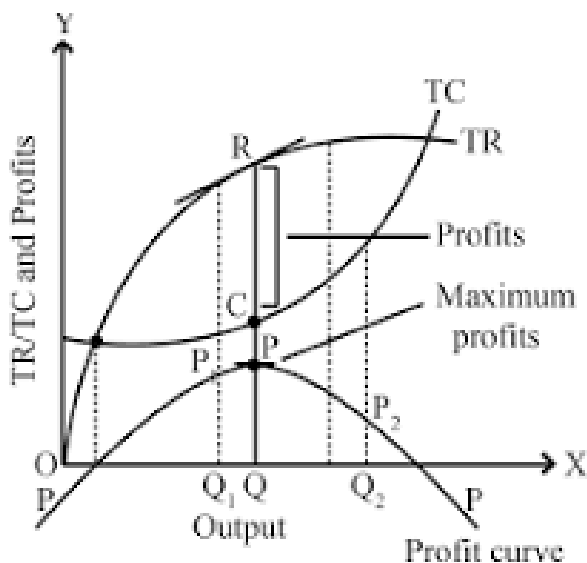
Economies of Scale

Economies of scale are cost advantages reaped by companies when production becomes efficient. Companies can achieve economies of scale by increasing production and lowering costs. This happens because costs are spread over a larger number of goods. Economies of scale are a reduction in costs to a business, which occurs when the company increases the production of their goods and becomes more efficient. This means that as businesses increase in size, it can lower their production costs and create a competitive advantage by either using

those cost savings for increased profits or using the savings to lower the cost of their product to the consumer.

Understanding economies of scale is important because of its effects on a business's production costs. Economies of scale create a competitive advantage for larger entities by putting out more production units and reducing their overall cost per unit.

Concept of Revenue and Cost-Total , Average and Marginal

The revenue is defined as the total income a business receives from selling a good or service to its customers. The cost is defined as the total expenses that are incurred in the production of goods or services by any individual or organisation. If the revenue increases, it will lead to a rise in the gross margin.

The cost is defined as the total expenses that are incurred in the production of goods or services by any individual or organisation. The cost of production is one of the major items that impact the gross margin, and it also affects the profitability of a company.
Marginal cost is the addition to the total cost for producing one additional unit. Average cost is the total cost divided by the total number of units produced.

The average cost is the average price of goods and services. When we have multiple products to sell or buy, of almost the same value, the average of these values will give the average cost price. It helps shopkeepers in the buying and selling process.

The average cost is the ratio of the total of cost of all the products to the total number of products. In Maths, we also have the term called "average". The average of any given set of data is called the mean of data. But in case of business, where profit and loss are the key features, the average is said to be the right term.

In economics, marginal cost is the change in the total cost when the quantity produced changes by one unit. It is the cost of producing one more unit of a good. Marginal cost includes all of the costs that vary with the level of production.

Market and Price Determination

Meaning and Classification of Market

When we talk about a market we generally visualize a crowded place with a lot of consumers and a few shops. People are buying various goods like groceries, clothing, electronics, etc. And the shops are also selling a variety of products and services as well. So in a traditional sense, a market is where buyers and seller meet to exchange goods and services.

Now we have seen what a market is. Let us learn more about the classification of markets. Broadly there are two classifications of markets – the product market and the factor market. The factor market refers to the market for the buying and selling of factors of production like land, capital, labor, etc. The other classification of markets is as follows:-

- **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.

- **Regional Markets:** These markets cover a wider are than local markets like a district, or a cluster of few smaller states.

- **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.

- **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.

Perfect competition-Meaning and characteristics

Perfect Competition Market: A perfectly competitive market is one in which the number of buyers and sellers is very large, all engaged in buying and selling a homogeneous product without any artificial restrictions and possessing perfect knowledge of market at a time. According to R.G. Lipsey, "Perfect competition is a market structure in which all firms in an industry are price- takers and in which there is freedom of entry into, and exit from, industry." Characteristics of Perfect Competition: The following are the conditions for the

existence of perfect competition:

(1) **Large Number of Buyers and Sellers**: The first condition is that the number of buyers and sellers must be so large that none of them individually is in a position to influence the price and output of the industry as a whole. The demand of individual buyer relative to the total demand is so small that he cannot influence the price of the product by his individual action. The individual seller is unable to influence the price of the product by increasing or decreasing its supply. Rather, he adjusts his supply to the price of the product.

(2) **) Freedom of Entry or Exit of Firms:** The next condition is that the firms should be free to enter or leave the industry. It implies that whenever the industry is earning excess profits, attracted by these profits some new firms enter the industry. In case of loss being sustained by the industry, some firms leave it.

(3) **Homogeneous Product:** Each firm produces and sells a homogeneous product so that no buyer has any preference for the product of any individual seller over others. This is only possible if units of the same product produced by different sellers are perfect substitutes. No seller has an independent price policy. Commodities like salt, wheat, cotton and coal are homogeneous in nature. He cannot raise the price of his product.

(4) **Perfect Mobility of Goods and Factors:** Another requirement of perfect competition is the perfect mobility of goods and factors between industries. Goods are free to move to those places where they can fetch the highest price. Factors can also move from a low-paid to a high-paid industry.

(5) **Perfect Knowledge of Market Conditions:** Buyers and sellers possess complete knowledge about the prices at which goods are being bought and sold, and of the prices at which others are prepared to buy and sell. perfect knowledge of market conditions forces the sellers to sell their product at the prevailing market price and the buyers to buy at that price.

(6) **Absence of Selling Costs**: Under perfect competition, the costs of advertising, sales-promotion, etc. do not arise because all firms produce a homogeneous product.

Perfect competition and Pure competition.

Pure competition, also commonly referred to as perfect competition, is a largely theoretical

term to describe a market economy where products, prices and producers are all on a level playing field. The prices of goods in pure competition are set by consumers based on demand.

In the words of Chamberlin "Pure competition means competition unalloyed by monopoly elements. It is a much simpler and less exclusive concept than perfect competition for the latter may be interpreted to involve perfection in many other respects than in the absence of monopoly."

Determination of Price and Output under perfect competition

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 organization 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.
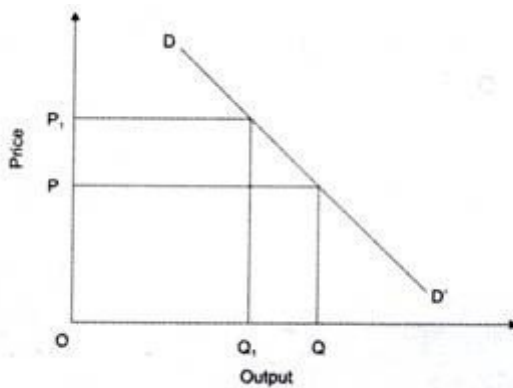

Figure-1: Demand Curve under Perfect Competition

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.
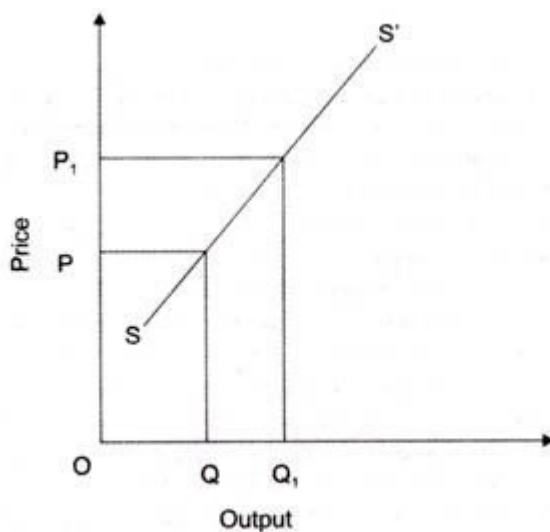

Figure-2: Supply Curve under Perfect Competition

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.

Determination of Price and Output under Monopoly

Monopoly refers to a market structure in which there is a single producer or seller that has a control on the entire market.

This single seller deals in the products that have no close substitutes and has a direct demand, supply, and prices of a product.

Therefore, in monopoly, there is no distinction between an one organization constitutes the whole industry.

Demand and Revenue under Monopoly:

In monopoly, there is only one producer of a product, who influences the price of the product by making Change m supply. The producer under monopoly is called monopolist. If the monopolist wants to sell more, he/she can reduce the price of a product. On the other hand, if he/she is willing to sell less, he/she can increase the price.

As we know, there is no difference between organization and industry under monopoly. Accordingly, the demand curve of the organization constitutes the demand curve of the

entire industry. The demand curve of the monopolist is Average Revenue (AR), which slopes downward.
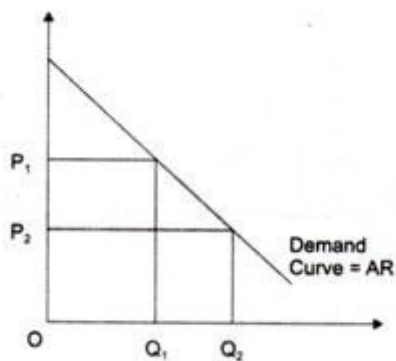
Figure9: shows the AR curve of the monopolist:

Figure-9: AR Curve under Monopoly

In Figure-9, it can be seen that more quantity (OQ_2) can only be sold at lower price (OP_2). Under monopoly, the slope of AR curve is downward, which implies that if the high prices are set by the monopolist, the demand will fall. In addition, in monopoly, AR curve and Marginal Revenue (MR) curve are different from each other. However, both of them slope downward.

The negative AR and MR curve depicts the following facts:

i. When MR is greater than AR, the AR rises

ii. When MR is equal to AR, then AR remains constant

iii. When MR is lesser than AR, then AR falls

Here, AR is the price of a product, As we know, AR falls under monopoly; thus, MR is less than AR.
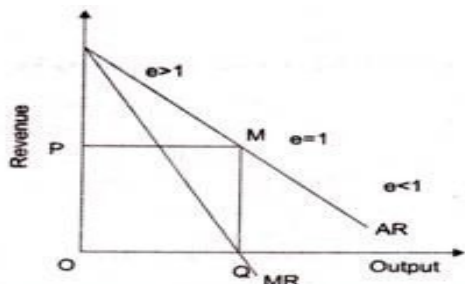
Figure-10 shows AR and MR curves under monopoly:

Figure-10: MR and AR Curves under Monopoly

In figure-10, MR curve is shown below the AR curve because AR falls.

Monopoly Equilibrium:

Single organization constitutes the whole industry in monopoly. Thus, there is no need for separate analysis of equilibrium of organization and industry in case of monopoly. The main aim of monopolist is to earn maximum profit as of a producer in perfect competition.

Unlike perfect competition, the equilibrium, under monopoly, is attained at the point where profit is maximum that is where MR=MC. Therefore, the monopolist will go on producing additional units of output as long as MR is greater than MC, to earn maximum profit.

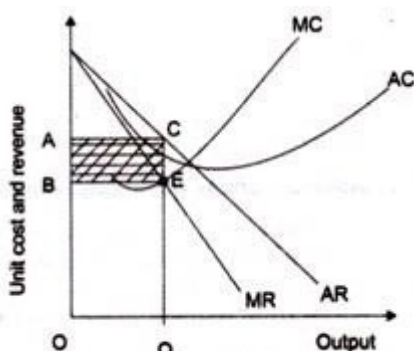**Let us learn monopoly equilibrium through Figure-11:**

Figure-11: Monopoly Equilibrium

In Figure-11, if output is increased beyond OQ, MR will be less than MC. Thus, if additional units are produced, the organization will incur loss. At equilibrium point, total

profits earned are equal to shaded area ABEC. E is the equilibrium point at which MR=MC with quantity as OQ.

It should be noted that under monopoly, price forms the following relation with the MC:

Price = AR

MR= AR [(e-1)/e]:

e = Price elasticity of demand

As in equilibrium MR=MC

MC = AR [(e-1)/e]

Exhibit-2:

Determining Price and Output under Monopoly:

Suppose demand function for monopoly is Q = 200-0.4Q

Price function is P= 1000-10Q

Cost function is TC= $100 + 40Q + Q^2$

Maximum profit is achieved where MR=MC

To find MR, TR is derived.

TR= (1000-10Q) Q = $1000Q-10Q^2$

MR = $\Delta TR/\Delta Q$= 1000 – 20Q

MC = $\Delta TC/\Delta Q$ = 40 + 2Q

MR = MC

1000 – 20Q = 40 + 2Q

Q = 43.63 (44 approx.) = Profit Maximizing Output

Profit maximizing price = 1000 – 20*44 = 120

Total maximum profit= TR-TC= $(1000Q – 10Q^2) – (100+ 40Q+Q^2)$

At Q = 44

Total maximum profit = Rs. 20844

Monopoly Equilibrium in Case of Zero Marginal Cost:

In certain situations, it may happen that MC is zero, which implies that the cost of production is zero. For example, cost of production of spring water is zero. However, the monopolist will set its price to earn profit.

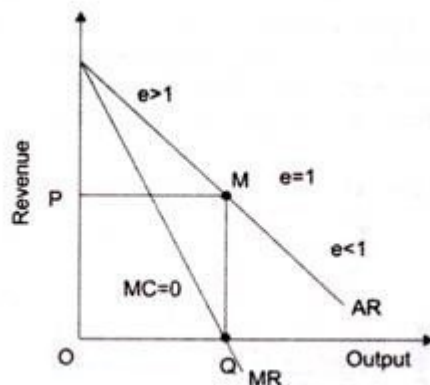**Figure-12 shows the monopoly equilibrium when MC is zero:**

Figure-12: Equilibrium under Monopoly when MC is Zero

In Figure-12, AR is the average revenue curve and MR is the marginal revenue curve. In such a case, the total cost is zero; therefore, AR and MR are also zero. As shown in Figure-12, equilibrium position is achieved at the point where MR equals zero that is at output OQ and price P. We can see that point M is the mid-point of AR curve, where elasticity of demand is unity. Therefore, when MC = 0, the equilibrium of the monopolist is established at the output (OQ) where elasticity of demand is unity.

Monopolistic Competition

Monopolistic competition is a type of market structure where many companies are present in an industry, and they produce similar but differentiated products. None of the companies enjoy a monopoly, and each company operates independently without regard to the actions of other companies.

Monopolistic competition refers to a market state with high levels of competition among companies selling similar goods. This competitive nature allows firms to generate profit but requires innovation to do so. Learning about this concept can help you understand key components of microeconomics and how economic markets function. n a monopolistic competition, the barriers of entrance and exit are comparatively low. The companies try to differentiate their products by offering price cuts for their goods and services. The examples of such industries are hotels, e-commerce stores, retail stores, and salons.

Theory of Factor Pricing

Marginal Productivity Theory of Distribution

The marginal productivity theory of distribution, as developed by J. B. Clark, at the end of the 19th century, provides a general explanation of how the price (of the earnings) of a factor of production is determined.

In other words, it suggests some broad principles regarding the distribution of the national income among the four factors of production.

According to this theory, the price (or the earnings) of a factor tends to equal the value of its marginal product. Thus, rent is equal to the value of the marginal product (VMP) of land; wages are equal to the VMP of labour and so on. The neo-classical economists have applied the same principle of profit maximisation (MC = MR) to determine the factor price. Just as an entrepreneur maximises his total profits by equating MC and MR, he also maximises profits by equating the marginal product of each factor with its marginal cost.

1 MPP: The first is marginal physical product of a factor. The marginal physical product (MPP) of a factor, say, of labour, is the increase in the total product of the firm as additional workers are employed by it.

2. VMP: The second concept is value of marginal product. If we multiply the MPP of a factor by the price of the product, we would get the value of the marginal product (VMP) of that factor.

3. MRP: The third concept is marginal revenue product (MRP). Under perfect competition, the VMP of the factor is equal to its marginal revenue product (MRP), which is the addition to the total revenue when more and more units of a factor are added to the fixed amount of other factors, or MRP = MPP x MR under perfect competition. It is simply MPP multiplied by constant price, as P = MR. [VMP of a factor = MPP of the factor x price of the product per unit, and MRP of a factor=MPP of the factor x MR under perfect competition. So under perfect competition VMP of a factor = MRP of that factor.]

The Essence of the Theory

The theory states that the firm employs each factor up to that number where its price is equal to its VMP. Thus, wages tend to be equal to the VMP of labour; interest is equal to VMP of capital and so on. By equating VMP of each factor with its cost a profit- seeking firm maximises its total profits. Let us illustrate the theory with reference to the determination of the price of labour, i.e., wages.

Let us suppose that the price of the product is Rs. 5 (constant) and the wages per unit of labour are Rs. 200 (constant). As the number of factors other than labour remain unchanged, wages represent the marginal cost (MC).

Concept of Welfare Economics

Welfare economics is the study of how the allocation of resources and goods affects social welfare. This relates directly to the study of economic efficiency and income distribution, as well as how these two factors affect the overall well-being of people in the economy.

Welfare economics is the study of how economic policies, the allocation of resources, specific market structures, and the distribution of income impact the social welfare of individuals and society as a whole. In this way, welfare economists are concerned with the distribution of economic resources and the efficiency of the economy as well as how these two factors interact with the overall well-being of people in a society. The purpose of welfare economics is to develop theories and models that can be used to improve the economic and social welfare of people in a society as well as ensure the equitable distribution of resources and income.