BUSINESS ECONOMICS

B.Com (Gen & CA) Semester-II

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B.Com., (CA & General): Business Economics (EM)

First Edition: 2021

No. of Copies:

Published by

Dr.Nagaraju Battu

Director

Centre for Distance Education
Acharya Nagarjuna University

Printed at :

FOREWORD

Since its establishment in 1976, Acharya Nagarjuna University has been forging ahead in the path of progress and dynamism, offering a variety of courses and research contributions. I am extremely happy that by gaining 'A' grade from the NAAC in the year 2016, Acharya Nagarjuna University is offering educational opportunities at the UG, PG levels apart from research degrees to students from over 443 affiliated colleges spread over the two districts of Guntur and Prakasam.

The University has also started the Centre for Distance Education in 2003-04 with the aim of taking higher education to the door step of all the sectors of the society. The centre will be a great help to those who cannot join in colleges, those who cannot afford the exorbitant fees as regular students, and even to housewives desirous of pursuing higher studies. Acharya Nagarjuna University has started offering B.A., and B.Com courses at the Degree level and M.A., M.Com., M.Sc., M.B.A., and L.L.M., courses at the PG level from the academic year 2003-2004 onwards.

To facilitate easier understanding by students studying through the distance mode, these self-instruction materials have been prepared by eminent and experienced teachers. The lessons have been drafted with great care and expertise in the stipulated time by these teachers. Constructive ideas and scholarly suggestions are welcome from students and teachers involved respectively. Such ideas will be incorporated for the greater efficacy of this distance mode of education. For clarification of doubts and feedback, weekly classes and contact classes will be arranged at the UG and PG levels respectively.

It is my aim that students getting higher education through the Centre for Distance Education should improve their qualification, have better employment opportunities and in turn be part of country's progress. It is my fond desire that in the years to come, the Centre for Distance Education will go from strength to strength in the form of new courses and by catering to larger number of people. My congratulations to all the Directors, Academic Coordinators, Editors and Lesson- writers of the Centre who have helped in these endeavours.

Prof. P. Raja Sekhar
Vice-Chancellor (FAC)
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I Year B Com (Gen & CA)– Semester – II
Course 2B: Business Economics

Learning Outcomes:
At the end of the course, the student will able to;
 Describe the nature of economics in dealing with the issues of scarcity of resources.
 Analyze supply and demand analysis and its impact on consumer behaviour.
 Evaluate the factors, such as production and costs affecting firms behaviour.
 Recognize market failure and the role of government in dealing with those failures.
 Use economic analysis to evaluate controversial issues and policies.
 Apply economic models for managerial problems, identify their relationships, and formulate the decision making tools to be applied for business.

Syllabus

Unit-I: Introduction: Meaning and Definitions of Business Economics - Nature and Scope of Business Economics -Micro and Macro Economics and their Interface.

Unit-II: Demand Analysis: Meaning and Definition of Demand – Determinants to Demand –Demand Function -Law of Demand – Demand Curve – Exceptions to Law of Demand - Elasticity of Demand – Measurements of Price Elasticity of Demand

Unit – III: Production, Cost and Revenue Analysis: Concept of Production Function – Law of Variable Proportion -Law of Returns to Scale - Classification of Costs -Break Even Analysis - Advantages

Unit-IV: Market Structure: Concept of Market – Classification of Markets -Perfect Competition – Characteristics – Equilibrium Price -Monopoly – Characteristics – Equilibrium Under Monopoly.

Unit-V: National Income: Meaning – Definition – Measurements of National Income - Concepts of National Income -Components of National Income-Problems in Measuring National Income

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CONTENTS

Lesson : 1

ECONOMICS – DEFINITIONS - SCOPE

1.0 OBJECTIVES OF THE LESSON:

At the end of this lesson you will be able to know:

* The subject matter of Economics
* Economic and Non-Economic Activities
* Basic Economic Activities
* Definitions of Economics
* Scope of Economics
* Distinction Between Micro-Economics and Macro Economics
* Distinction Between Static Economics and Dynamic Economics
* Methods of Scientific Study
* Importance of Economics
* Relationship with other Sciences

CONTENTS:

1.1 INTRODUCTION OF ECONOMICS:

Human wants are unlimited. But the resources to satisfy those wants are limited. If the resources are unlimited in accordance with unlimited wants, economic problem will not arise.

Then there is no need of economics also. In reality, the resources are limited and it leads to economic problem. That is why one has to choose the wants that are to be satisfied with the limited resources. For example, an individuals income is Rs. 2,000/-. With this limited income he has to pay rent, feeses of his children and other expenses. In addition, he may have so many wants to satisfy. But with his limited income, he unable to satisfy those wants. Economics is useful in a situation when the wants are unlimited and the resources are limited.

Economics explains the human behaviour between unlimited wants and scarce resources. As the resources are scarce, all wants cannot be satisfied. So the problem of choice will arise. Economics is useful in selecting the uses to which scarce resources can be put. Selecting a resource for one use means foregoing for other uses.

Economics explains the human behaviours between ends and scarce means. In addition, it studies the level of income, fluctuations in employment, economic stability, economic growth and development etc. The objectives of the subject economics are multifaceted that is why an eminent economist states that economics is what economics does.

1.2 ECONOMIC & NON - ECONOMIC ACTIVITIES:

Human activities can be divided into two, namely, economic activities and non-economic activities.

1.2.1 ECONOMIC ACTIVITIES: Activities relating to economy or the activities that are dealt by economics are called as economic activities. Since birth, man consumes different kinds of goods such as milk, rice, books, televisions and services of lawyers and doctors etc. Producing of such goods and services is known as production.

Economic activities such as production and consumption are limited with either money or income. Income can generate or expenditure can proceed in the process of these activities. Example in the process of production income generates. The income earners spends this amount on consumption. Like wise, economic activities will continue. Any person in the activity to satisfy a want by earning income by any person, at any part of the world, or at any time is called as economic activity. Economics considers all kinds of economic activities.

1.2.2 NON - ECONOMIC ACTIVITIES: Activities that can be done with out expecting an monitory benefit or freely for the sake of self satisfaction are come under non-economic activities. In other words, all activities which can be done without monetary intension are called as non-economic activities. Activities such as love, satisfaction, affection, etc… are come under non economic activities.

Religions and cultural activities render free of cost are also considered as non-economic activities. However, non-economic activities may be changed into economic activities.

1.3 BASIC ECONOMIC PROBLEMS:

Every economy has to face three basic economic problems. It may be capitalist economy or socialist economy or mixed economy, these three problems are the main problems. They are:

1. What is to be produced and in what quantities.
2. How to produce
3. For whom to be produced

1.3.1 WHAT IS TO BE PRODUCED AND IN WHAT QUANTITIES: The first central problem is what goods and services are to be produced and in what quantities because the resources are scarce and they have to allocate among different uses. As the resources are scarce, the society has to decide how much resources are allocate for consumer goods and how much for capital good basing on the priorities. If higher priority given to consumer goods which implies less for capital goods and vice versa. Hence, what is to be produced and in what quantities is an important economic problem.

1.3.2 HOW TO PRODUCE: After deciding the first problem what is to be produced and in what quantities, the next basic problem is to decide the methods or techniques to be used to produce the require goods. There are different kinds of techniques of which the two important are : 1. Labour intensive Technique (Method of using more labour and less capital), 2. Capital intensive technique (Method of using more capital and less labour). Basing on the availability of labour and capital, the countries have to select the technique which is suitable to their conditions. Labour abundant and capital scarce countries adopt labour intensive technique. Where as, capital abundant and labour scarce countries adopt capital intensive technique.

1.3.3 FOR WHOM TO BE PRODUCED: Lastly, the problem is for whom are the goods produced. This problem is allocation of goods among the different members in the society. The goods that are produced in the country are to be distributed among different sections of the society namely labour, producers, land lords etc. What criteria is to be adopted to distribute is the crucial problem. Economists like Adam Smith, Recordo etc are enunciated different theories of distribution. In general, the distribution is depend upon the objectives of the country.

The three basic problems discussed above are important economic problems. In capitalistic economies, these problems will be solved by market mechanism, where as, these problems will be settled by the government in socialist economies. In mixed economies, these problems will be solved by market mechanism as well as the Government and the level of sharing is based on the circumstances.

1.4 DEFINITIONS OF ECONOMICS:

Every science require a definition. Because definition gives the boundaries of that subject. It explains the subject matter that the science deals. So the definition of economics states that what things the economics considers and what are not. However, it is not that much easy to give an appropriate definition for economics in the changing circumstances.

Like any other sciences, different economists gave different kinds of definitions for economics. These definitions can be categorised into four types.

1. Wealth Definition or Adam Smith Definition (18th Century)
2. Welfare Definition or Marshall Definition (19th Century)

3. Scarce Definition or Robbins Definition (20th Century)

4. Growth Definition or Samuelson Definition (20th Century)

1.4.1 WEALTH DEFINITION: Adam Smith, the father of economics defined economics in the year 1776 in his trcatise ' An enquiry in to Nature and causes of wealth of Nations'. According to Adam Smith economics is a science of wealth. It treats the nature and causes of wealth of nations. Economics like J.B. say, J.S. Mill, Nausa senior etc are also same kind of opinion on economics.

The definitions of economics given by Adam Smith and other reveals that mobilising of wealth is the main aim of economics.

Important Points In Wealth Definition:

1. Economics deals with material wealth.
2. Wealth means material wealth or physical wealth and these are scarcely available.
3. Economics means mobilisation of wealth which can be called economic development.

As this definition gives undue importance to wealth activities but neglected the human welfare, the wealth definition was criticised in many ways.

1. Adam Smith gave undue importance to wealth and neglected human welfare.
2. According to this definition material things only come under the purview of economics but non-material goods and services will not come under economics.
3. Carlyle, Ruskin, Dickens opined and lamented that giving undue importance means lowering the status of man and led economics as mannerism, a dismal science, the science of getting rich.
4. Economists criticised this definition as it leads to over selfishness.

1.4.2 WELFARE DEFINITION: In order to gave a respectable place to economics, Marshall has given a definition by giving emphasis on man and his welfare. He considered wealth is source of human welfare and it is not end in itself. Marshall in his book 'Principles of Economics', in the year 1890, he stated that 'economics is one side a study of wealth; and on the other, and more important side, a part of the study of man Marshall defined economics as 'Political Economy or Economics is 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 requirements of well being. Economists such as, A.C. Pigoue, Edwin Cannon, Beveridge were also defined economics by emphasizing human welfare.

Important Points in Welfare Definition:

1. Human life concerned with social, religions, political and economic aspects. But economics deals only economic aspects.
2. Economic is concerned with the study of man living in a society. It is not concerned with the activities of a isolated man like Robbinson Crusoe.

3. H is implied by Marshall's definition states that material goods only promote human welfare.

4. Marshall has given more importance to human welfare than wealth.

Marshall's wealth definition is an improvement to wealth definition. However, this definition also fall under severe criticism.

Criticism:

1. There are two kinds of goods viz., material and non-material goods (services) that promote human welfare. But Marshall considers only material things and neglected non-material things (services) in his definition.

2. Marshall states that activities which improve human health are considered in Economics. There are certain material activities such as intoxicants are not conductive for human welfare. Still they are considered in economics because they are scarce and have economic value.

3. The word welfare is also criticised by the economists. Welfare is a psychological phenomena. It is subjective and cannot be measurable. The idea of welfare differs individual to individual, place to place and country to country. For example, wine may give pleasure to drunkers, but is harmful for the novice.

4. If the welfare definition is accepted, every time one has to study weather the activity is conducive to human welfare or not. It is not supposed be the function of Economics. Hence, Robbins states that economics is neutral as regards to ends.

5. According to Marshall's definition economics can not studies isolated individuals such as Robbinson Crusoe. Actually, however, economics studies the isolated individuals as well as individuals living in the society.

Lionel Robbins criticised the welfare definition and given a scarcity definition while rectifying the major defects.

1.4.3 SCARCITY DEFINITION: Prof. Lionel Robbins in his publication "Nature and Significance of Economic Science" in the year 1932, defined economics without using the terms wealth and welfare. According to him, 'Economics is the science, which studies human behaviour as a relationship between ends and scarce means which have alternative uses.

Important Points in Scarcity Definition:

1. Human wants are unlimited. When a particular want satisfied another want crop up in its place.

2. The means or resources to satisfy the wants are limited or scarce.

3. These limited resources have alternative uses also.

4. As the limited resources put in one use one has to forego the other uses. Hence, the problem of choice comes in consumer satisfies the wants basing on the intensity.

SUPERIORITIES OF ROBBINS DEFINITION:

1. This definition does not contain the distinction of 'material goods' and 'non-material goods'. Economics considers and explains all kinds of goods.
2. Economics considered as science. It is a systematic body of knowledge. Like pure sciences, Economics is neutral between ends.
3. Economics got universality due to this definition. Economics is a study of human behaviours between unlimited wants and scarce resources, it cannot considers whether an individual leading isolated life or in a society.
4. The definition extended the scope of economics. It is extended to that area where the problem of 'choice' arises.
5. Unlike Marshall, Robbins identified the basic problem of Economics.

Robbins definition is superior over other definitions in several aspects. However, this definition is not free from criticism. Economists, such as, Barbara Woofer, Beveridge, Keynes, Knight etc are criticized the definition.

1. Though Robbins rejects the using of the term 'welfare', the critics states that it is a concealed concept in the definition. As economics is a science of choice means it is implied that the welfare concept extended into economics in loop line.
2. Economists criticized this definition on ethical neutrality. They opined that ethical neutrality leads to deficiency of human touch in economics.
3. Economising scarce resources in relation to ends for the solution of all economic problems is made economics as value theory. According to this definition, economics cannot considers aggregate economic activities such as national income, employment though they come under the purview of economics.
4. Recently, economic growth and economic development are important concepts in economics. But Robbins did not consider these concepts in his definition.
5. Experiences states that economic problems arise not only with scarcity but also plenty. Example Depression of thirties. Robbins has not identified that plenty is also a responsible for economic problem.
6. Some times, the problem of allocating scarce means among given ends, there may be a necessity to consider non-economic problems also.
7. As collective choice is more important than individual choice in socialist countries, this definition cannot be applicable to socialist economies.

Though this definition has several short comings, it is a scientific definition and better than the other definitions.

1.4.4 GROWTH DEFINITION : Recently economic growth occupies important place in the study of economics. Professor Samuelson refined Robbins definition defined economics by taking choice, economic growth, planning etc into consideration. According to Samuelson

'Economics is the study of how people and society choose with or without money to employ scarce productive resources that could have alternative uses to produce various commodities overtime and distribute them for consumption now or in the near future among various people and groups in the society. Economics analyses the cost and benefits of improving the pattern of resource use'.

SUPERIORITIES OF GROWTH DEFINITION:

1. Samuelson also considered the scarcity of resources and their alternative uses like Robbins.
2. He explained the problems arises in production and distribution while using these scarce resources.
3. He gave importance to economic growth in his definition.
4. He identified not only present problems but also future problems and analysed the factors which are necessary for growth.
5. He has bring the non-economic problems into the purview of economics along with economic problems.
6. He added growth along with scarcity in his definition.

In addition to the above definitions, different economists defined economics in different ways. However, for the sake of convenience, we are limiting to the above definition.

1.5 SCOPE OF ECONOMICS:

Scope of a science means considering the boundaries of the subject. Similarly scope of economics means estimating the boundaries of economics. Basing on the definitions, we can assess the scope of economics upto certain extent. However, we can know the true scope of economics.

1. Subject-matter of Economics
2. Nature of Economics
3. Limitations of Economics

1.5.1 SUBJECT – MATTER OF ECONOMICS: According economists such as Adam Smith, J.S. Mill, J.B. Say, Ricardo, economics is a science of wealth. So, the scope limited to wealth only. Alfred Marshall added the material welfare to wealth in his definition. Later Lionell Robbins defined economics as a human behaviour as a relationship between ends and scarce means which have alternative uses with out mentioning neither wealth nor welfare. The Robbins definition widened the scope of economics and the things like individuals, families, business firms, Government comes under the purview of economics. Hence activities such as consumption, production, exchange distribution, public finance, international business will come under the scope of economics.

1.5.2 NATURE OF ECONOMICS: There is no unanimous opinion among different economists on nature of economics. The discussion on the following will give clear picture about the nature of economics.

A) Economics is a Science or Art ?

B) Economics is positive science or normative science.

1.5.2a. ECONOMICS IS A SCIENCE OR ART?: A systematic body of knowledge ascertainable by observation and experiment is called as science. A science consists of principles, laws, cause and effect relations and generalisations. Economics is considered as science because it comprises of economic principles, laws, cause and effect relations and the laws posses universal validity also. Hence, economics considered as science.

The practical application of scientific principles is called art. Economic principles can be applicable in the society. The causes and effect of poverty come under the purview of science and the activities taken for the removal of poverty is considered as art. Robertson, Robbins considered economics as science, where as, the economists such as Pigoue, Marshall, J.S. Mill considered economics as art.

A science should posses the feature art. Science and art are complementaries. Economics is science as well as art. The discussion on 'economics is science or art' shows how the scope of economics has widened.

1.5.2b. ECONOMICS IS POSITIVE SCIENCE OR NORMATIVE SCIENCE: Robbins brought the controversy weather economics is normative science or positive science. Positive economics concerned to 'what is' where as normative economics is 'what ought to be'. The former is pure science while the latter is an ethical science.

In Robbins view economics is positive science means 'what is'? or pure science. It is unconcerned with the moral or ethical judgements. It is neutral between ends. Economists are unconcerned with the passing of judgement weather an economic activity increase the welfare or not ?

With regard to normative context, economics is a social science. It is the responsibility of the social scientists to take right decisions. Similarly, it is the responsibility of economists to point out the positive and negative features of economic activities or laws. It is also evident that the importance of moral and ethical laws has continuously increasing in the business field.

The above discussion states that economics is not only a positive science but also a normative science of what ought to be. If economics is a pure science, economic welfare will not be increased. There will be no solution to the serious economic problems like unemployment, inflation etc. Hence, the role of economics is more as normative science than positive science. The above discussion reveals that scope has further widened.

1.5.3 LIMITATIONS OF ECONOMICS: It essential to know the limitations of economics to understand the scope of economics. The limitations of economics are :

1. Even though the life of a human being linked with social, cultural, religions, political and economic activities, economics is limited to only economic activities.

2. Economics will not consider the irrational people such as drunkards, misens etc..,
3. It studies the scarce resources in the economy.
4. Economics cannot studies the people who lives in illusions.
5. Economic laws are scientific laws. They explain the cause and effect relationship. Unlike scientific laws, economic laws are not assertive.

The above discussions on subject-matter of economics nature of economics and limitations of economics reveals the scope of economics.

1.6 MICRO AND MACRO-ECONOMICS:

Ragnar Fish was the first economist who divided the subject matter of economics into micro economics and macro economics.

1.6.1 MICRO ECONOMICS: Micro Economics studies the economic activities of individuals (individual consumer of households or firm etc) and small groups of individuals. Micro economics can also be called as price theory. In micro-economic analysis, price determination and allocation of resources is studied three stages, such as, the equilibrium of individual consumers and producers, the equilibrium of a single market and the simultaneous equilibrium of all markets. As this is a study with very small units, in an economy this is called as micro economics.

IMPORTANCE: Micro-Economics got an important place both theoretically and practically in economic analysis. Micro economics is useful :

1. To understand the working of an economy and free enterprise economy in particular.
2. To provide analytical tools for evaluating the economic policies.
3. To provide suitable solutions for efficient allocation of resources.
4. Helpful in understanding the problems of taxation, international trade
5. To examine the conditions of economic welfare.

LIMITATIONS: Micro Economics has got the following limitations :

1. It is concerned with individual units and neglects the whole or aggregates.
2. It based on unrealistic assumptions such as ‘fuel employment’, ‘Leisseinz faire’ etc.
3. Some times it misleads in analysing several economic problems.

1.6.2 MACRO ECONOMICS: Macro Economics studies with the aggregate economic activities. Macro economics can also be called as Income Theory. It studies the economy as a whole and Employment. Economic activities such as total employment, national income, national output, total investment, total consumption etc are dealts in macro economics. It studies the nature of aggregate variables, their inter-relations, their determination and causes of fluctuations in them etc.

IMPORTANCE: The following points shows the importance of macro economics in an economy.

1. It is useful to understand the working of an economy.
2. It is useful to formulate correct economic policies to the country.
3. It is the basis of all plans of economic development of under developed countries.
4. It enable us to properly organise, collect and analyse the data of national income and other social accounts.

LIMITATIONS: Macro Economics is also not free from any limitations.

1. It studies economy as a whole but neglects the individual items.
2. Excessive thinking in terms of aggregates leads to mis-leading impressions. For example, consider that the national income of India increased by 42 per cent and per capita income by 17 per cent during first decade of planning. This looks like a fair record but over looks the inequalities in the redistribution of that increment in income among different social groups.
3. Inspite of all improvement in statistical tools, it is not possible to get satisfactory measures of aggregates as well as averages which form the basic data for macro economics.

1.6.3 INTER RELATIONSHIP BETWEEN MICRO AND MACRO ECONOMICS: There is no clear cut boundaries to distinguish between micro and macro economics. They are interrelated and interdependent. Micro economic theory depend up on macro economics in certain instances, where as, macro economics depend, on micro economic analysis in certain instances. In addition, there is non-interdependence between the two. There are many macro economic problems which are not applicable to individuals vice versa. For example, there can be and usually divergence between-individuals income and his expenditure but for the economy as a whole total income and total expenditure are always equal. In certain cases, in micro point of view, individual savings gives positive results but aggregate savings (economy as a whole) will lead to fall in capital that in turn leads to fall in income and employment etc. Hence, separate study of micro economics and macro economics is inevitable to study the economic problems.

1.7 STATIC ECONOMICS, DYNAMIC ECONOMICS:

Augustive Compte introduced the concept static, dynamics in sociology. J.S. Mill used these concepts in economics. Static in economics implies a state characterised by movement at a particular level without any change. In static economics, analysis made on the assumption that there is no change population, capital, production techniques etc. In other words time element does not taken into consideration.

But actually economy is dynamic changes in population, capital, techniques of production etc may be happened through time. An economic analysis made by taking the changes which continues through time is known as dynamic economics.

Economic statistics and economic dynamics are essential for economic analysis. Because some economic problems can be solved by economic statistics where as, other can be solved by economic dynamics.

1.8 METHODS OF ECONOMIC ANALYSIS:

There are two kinds of scientific methods to analyse the economic problems. They are 1. Deductive method 2. Inductive method. Deductive method means the application of logic to go from the general observations to particular principles. Where as, inductive method deals with particular facts, arranges those facts so as to formulate some empirical generalisations.

1.8.1 DEDUCTIVE METHOD: This method was used by classical economists. They tried to build up the scientific principles. This method starts with indisputable facts about human nature and draw improvences about concrete individual cases. The deductive method is of two kinds, the mathematical and the non-mathematical. Almost all classical economists supported deductive method but mathematical. This method involves the following steps in formulating economic laws.

1. The deductive method is useful in analysing the complex economic phenomenon where cause and effect are inextricably mixed up.
2. It is very simple method and it is easy for application.
3. Analysis and process of logical reasoning where by inferences are drawn.

In this method, we formulate principles on human behaviour, observations and experiments are out of question.

MERITS AND DEDUCTIVE METHOD:

1. As this method is based on more and more complete assumptions, this method is nearer to reality.
2. The principles drawn from this method are of universal validity.
3. The use of mathematical tools in this method brings exactness and clarity. The principles formulated by this method will give scope for further research.
4. The principles developed by deductive method are very useful for the government to make policy decisions.

DEMERITS OF DEDUCTIVE METHOD:

1. There is limited scope for economists to formulate laws in laboratories like physical and biological sciences.
2. It requires high competence on logic.
3. The conclusions derived from deductive reasoning are not applicable universally. Because the premises from which they have been deduced may not hold good at all times and all places.

4. The principles drawn from this method may not be universally valid. If they based on inadequate data.

5. This method is highly abstract and refuse great skill in drawing inferences.

1.8.2 INDUCTIVE METHOD: In this method, principles or laws formed on inductive logic. Which involves the process of reasoning from a particular fact. Basing on the facts, general principles will be developed. Inductive method go up. This from particulars to generates, of hypothesis, generalisation of the principle and verification.

MERITS OF INDUCTIVE METHOD:

1. This method is concrete and synthetic and realistic, it based on facts and explain them as they actually are.

2. This methods helps in-future enquiries.

3. As statistical tools are marks most in this method, there is a significant improvement in analysing the economic problems.

4. This method is dynamic method because the changing economic phenomena can be analysed.

5. This method is more suitable in formulation of economic policies.

DEMERITS OF INDUCTIVE METHOD:

1. It is time consuming and costly.

2. Observation and experimentation have very limited application an a science which deals with human activities.

3. Definitions, sources and methods used in statistical analysis differ from investigator to investigator even for the same problem. Hence, statistical tools are lack of concreteness.

4. This method is useful for natural and physical sciences, but not social science which deals with human behaviour.

These two types of methods are needed for scientific thought as the right and left four are needed for walking.

1.9 IMPORTANCE OF ECONOMICS:

Social science is the study of the totality of mass social behaviour. Development of the society is the main motto of all sciences. Man is the central focus. Economics is one among different social sciences which is very important theoretically as well as practically. For that reason, Mrs. Joan Robbinson told that economics is a box of different economic tools which are useful for giving solutions for different economic problems.

1. Economic is useful to understand functioning of the economy. It will give solution to the three basic economic problems such as what to produce, how to produce and whom to produce.

2. It is helpful to know about market mechanism, price determination mechanism etc.,
3. It gives solution to the basic economic problem i.e., economising scarce resources for optimum utilisation of resources.
4. It suggests suitable tax policy to the economy.
5. Economics useful to analyse the different problems crop up during foreign trade viz : international trade, international finance, Balance of payment, Exchange rates etc.,
6. It gives the required condition for an economy to attain maximum economic welfare.
7. It useful to develop economic model for the economies.
8. It is useful to formulate economic policies for their development.
9. Economics provides various kinds of economic tools, such as, cost-benefit analysis, linear programming etc to analyse the economic problem. Finally, economics is very important because it give right directions to divert the economy in right path.

1.10 RELATIONSHIP WITH OTHER SCIENCES:

Economics is a part of social science which studies the human behaviour. Economics occupies a respectable place among other sciences and it has intimately related political science, history, sociology, ethics, mathematics and statistics etc. The following discussion explains the relation of economics with some of the sciences.

1.10.1 ECONOMICS - POLITICAL SCIENCES: In the beginning, economics is called as political economy and now it is becoming more and more political economy. Economics explains the efforts to improve wealth and welfare, where as, political science explains the political conditions and institutions that influence the economic conditions on a country. Economics and Politics are act and react up on each other. Politics influence the economic conditions and politics are depend on economic situations. Politically colonialism of India is major cause for poverty and backwardness of India.

1.10.2 ECONOMICS – HISTORY: A record of part events is known as history. History explains the contemporary social, economic and political situations. By means of history, we can able to confirm or disprove old theories and discover new ones. History is largely contributed for formulation of theories such as trade cycles, economic growth, international trade etc. Hence, it has been well remarked Economic without History is no root, History with Economics is fruitless.

1.10.3 ECONOMIC – SOCIOLOGY: Sociology is the general science of the society. It studies the relationship of human beings with society Human relations, traditions etc and economic and ethical values etc are dealt in according sociology. Where as, Economics to Marshall is a study of mankind living in a society. Economics studies the economic aspects of the human beings living in a society in a specialised manner. The social life have a great influence on the economic organisation of the society and Economic set up influences the pattern of social life and social life. Hence these two sciences are interdependent. Example

Economic aspects such as population, mobility of labour etc influence the joint family system in the society.

1.10.4 ECONOMICS AND ETHICS: An Ethical values of the society are studied in 4 ethics. Economics is closely related with ethics. It is necessary that the Economic activities must be conducted on a moral plane. Economic development of a society will depend on moral values and sincerity of the individuals in that society. Anti-social activities or non-ethical activities such as black marketing, tax evasion, printing of fake currency etc. are creating negative effect on the society. Hence there is a proverb known as honesty is the best policy. Earlier economic thinker subordinated economics to ethics. But modern economists felt that economics is not concerned with the question right or wrong, good or bad. However, the influence of ethics on economics is inevitable in the study of normative economics or welfare economics.

1.10.5 ECONOMICS – PSYCHOLOGY: Psychology is made use in Economics. The law of choice, which is the most fundamental law of Economics, has a psychological basis. Mill described political economy as a moral or psychological science. Jevons made it even more psychological. To him the theory of economics was the mechanism of utility and say interest", and texture based on a calculus of pleasure and pain". Psychology of the consumer, producer, investor etc., are the basic determinants of economic principles.

1.10.6 ECONOMICS – MATHEMATICS: Economists have increasingly using the mathematics to build economic theories in the form of models. The tendency of using mathematics has led to the building of sophisticated, mathematical models. The relation between economic and mathematics has been increasing day by day. Besides the universality of mathematical language mathematical models afford exactness to economic to economic theories saving them from ambignity. Econometrics is a subject developed by using the sophisticated mathematical tools in economics. Presently, mathematics is using almost all spheres of economics such as planning, international economics etc..

1.10.7 ECONOMICS – STATISTICS: An economists data are statistics. As Ludwig von mises has connected', statistical figures referring to economic events are historical data. They tell us what happened in a non repeatable historical case". These statistics concern measure of the total volume of production of various commodities; the number of employed; the volume of sales; the total amount of payments; index numbers of whole sale and retail prices etc. some of the data are collected by private bodies. Various kinds of statistical tools are used to develop economic law. Statistical information is very useful for planning of the economy. For that season, the student of economics should necessarily know the statistics. Because statistical tools are very useful for formulating economic laws as well as for giving solutions for economic problems.

1.11 SUMMARY:

Economics is a study of human behaviour between ends and scarce means which have alternative uses. The definitions of economics given by different economists are categorised into four, namely wealth definition, welfare definition, scarcity definition and growth definition. Economic problem arises due to scarcity of resources. The important thing in economics is choice. Hence economics is also called as science of choice.

Knowing of the subject matter of economics, whether economics is science or art, or is it a positive or normative science is essential to under the scope of economics. Regnar Frish divided economics as micro and macro economics. Micro economics deals with individual units and macro economics deals with aggregates. These two are interdependent. The economic analysis made by taking time element is dynamic economics, where as, without taking time element is state economics. Like other sciences, economics is a science comprises of various principles, laws and models. There are two scientific methods to formulate economic principles viz., deductive method and inductive methods.

Induction is the process of seasoning from a part to the whole, from particulars to generals or from the individual to the universal.

1.12 IMPORTANT POINTS TO BE REMEMBERED:

1. Activities relating to economy or the activities that are dealt by economics are economic activities.
2. The basic economic problems are what is to produce, how to produce and whom to produce.
3. The definitions given for economics are four, namely, Adam Smith's wealth definition, Marshall's welfare definition, Robbin's scarcity definition and Samuelson's growth definition.
4. A systematic body of knowledge ascertainable by observation and experiment is called as science. The practical application of scientific principles is called as art. Economics is science as well as art.
5. Positive economics concerned to 'what is' and normative, economics is 'what ought to be'.
6. Economics which deals with the study individuals is micro economics, where as, economics which deals with aggregates is macro economics.
7. There are two scientific methods to formulate economic principle viz., deductive method and inductive method.

1.13 KEY CONCEPTS:

1.	**Production**	**:**	Creation of utility or process of producing goods and services.
2.	**Micro Economics**	**:**	A study of the economic actions of individuals or a small group of individuals. This may be called price theory.
3.	**Macro Economics**	**:**	A study of the economic actions of aggregates. This may be called income theory.
4.	**Deductive Method**	**:**	Deduces new conclusions from fundamental assumptions or from truths established by other methods.
5.	**Inductive Method**	**:**	Inductive method involves the process of reasoning from particular fact to general principles.

6. **Positive Economics :** Positive economics concerned to 'what is'. This is pure science.

7. **Normative Economics:** Normative economics is 'what ought be'. This is an ethical science.

8. **Static Economics :** Economic analysis made without taking time element under consideration.

9. **Dynamic Economics :** Economic analysis made by taking time element under consideration.

1.14 MODEL QUESTIONS:

I. ESSAY TYPE QUESTIONS:

1. 'What-ever economics concerned with it is not concerned with material welfare' Discuss.
2. Define economics and write its scope.
3. 'Allocation of scarce factors with multiplicity of want is economics' – Discuss.
4. Write the two methods needed for scientific thought ? What are the merits and demerits ?
5. Define Economics. Write its relationship with other sciences.

II. SHORT ESSAY TYPE QUESTIONS:

6. Distinguish between micro and macro economics.
7. Critically examine the wealth definition.
8. Write the scope of economics.
9. Critically examine the welfare definition.
10. Write a note on Basic Economic Problems.

1.15 SUGGESTED READINGS:

1. Gould, J.P. and Ferguson, C.E : Micro Economic Theory
2. Samuelson P.A. & Norhaus W.D. : Economics
3. Jhingan, M.L. : Advanced Economic Theory
4. Dewett K.K. : Modern Economic Theory
5. Ahuja, H.L. : Principles of Micro Economics
6. Telugu Academy : Economic Theory
7. Telugu Academy : Business Economics

Lesson : 2

BUSINESS ECONOMICS
SCOPE AND IMPORTANCE

2.0 OBJECTIVES:

At the end of this lesson you will be ablve to know:

* Definitions of Business Economics
* Economic Principles for the Business Analysis
* Scope of Business Economics
* Importance of Business Economics

CONTENTS:

2.1 INTRODUCTION:

Definitions of economics, scope, relationship with other social sciences are discussed in the previous lesson. This lesson deals with definitions of business economics, its scope etc... will be dealt in this lesson.

Application of economic theory to business management is known as managerial economics. This managerial economics is also called as business economics. Business Economics acts as a bridge between economic theory and business management. It is useful for identifying and analysing the problems that come across the business management. Presently business economics is not limited to business firms, its application is extended to the management of resources in government departments, univerisities and other organisations.

2.2 DEFINITIONS OF BUSINESS ECONOMICS:

Economics is a science that deals with human behaviour as a relationship between edns and searce means which have alternative uses. The main problem in economics is 'choice'. Business Economics deals how business firm allocate its scarce resources in order to maximise its profits. So the main problem in business economics also 'choics'. In order to get an idea on business economics, it is esential to study the definitions of business economics given by various economists.

1. **HAGUE, D.C:** Economics as using the logic of Economics, Mathematics and Statistics to provide effective ways of thinking about business decission problems.
2. **WATSON:** Proce theory explains the composition or allocation of total product - why more of some things is produced than of others.
3. **M.C. NAIR AND MERIAM:** Managerial economics/presives economics consists of the use of economic modes of thought to analyse business situations.

4. **SPENCER AND SEIGELMAN:** Business Economics asthe integration of economic theory with business practice for the purpose of facilitawing decision-making and forward planning by management.

5. **M.C. GUIGAN AND MOYER:** Managerial Economics is the application of economic theory and methodology to decission making problems faced by both public and private institutions.

The above definitions on business economics severals that business management involves many problems, business economics an a discipline gives analytical tools to solve those problems. In nutshell, business economics deals with te application of economic theory to busines mangement.

2.3 APPLICATION OF ECONOMIC THEORY TO BUSINESS PRACTICE:

Business Economics provides a number of analytical tools to business economists to analyse the business situations. The utility of these tools are dependon the skills of the business economist who practice them. Some of the tools which are widely use in business / managerial economics are discussed below.

2.3.1 OPPURTUNITY COST PRINCIPLE: The real cost of production of a given commodity is the next best alternative sacrificed in order to obtain that commodity is known as oppurtunity cost. The oppurtunity cost doctrice has a wide application in business field nationally and inter nationally. For example if a unit of land wants to put in a use of paddy, if has to for go from growing of wheet. If the land has only are use then the land oppurtunity cost is zero. The concet oppurtunity is immense use in business. For decission making, oppurtunity costs are the only relevant costs.

2.3.2 MARGINAL PRINCIPLE: Marginal Principle or incremental principle is widely used in consumption, production and distribution. Viz; Marginal utility, marginal cost, marginal productivity etc. This ue and use to find equilibrim of consumer / producer. Consumer will be at equilibruim where marginal utility is zero like wise producer will be at equilibrium were marginal productivity is zero. In this way, the principle applies to changes in prices, products, procedures, investments or what ever may be at stake in a business decission.

2.3.3 PRINCIPLE OF TIME PERSPECTIVE: Economics has brought the time element in decission making on output, prices, advertising and expansion of business. Basing on the duration, Marshall has devided time into very short period, short period, long run, secular period. These time perspectives are utilising in business management in explaining price and output behaviour. The costs are classified in to fixed and variable costs based on the time perspective. the time perspective principle is very useful tool provided by the economics to the business economists in taking crucial decissions.

2.3.4 DISCOUNT LAW: This principle explains the fundament fact that the present worth of the money is more than the future. Because future is uncertain and gives instability and uncertain. ence prefers precent to future. The discount principle gives the future worth of an asset basing on the present value. The discount principle is given by

$$PW = \frac{R_1}{1+i} + \frac{R_2}{(1+i)^2} + \cdots\cdots\cdots + \frac{R_n}{(1+i)^n}$$

PW = Present Work

i = Interest

$R_1, R_2, \cdots\cdots\cdots, R_n$ = Perspective annual retuerns.

Basing on the above principle we can find present worth of money whose value after two years is RS: 100/- when the intersent rate is 8 per at per year.

$$PW = \frac{100}{1+i} + \frac{100}{(1+i)^2} = 85.73$$

This principle of economics used in businesseconomics.

2.3.5 THE EQUI - MARGINAL LAW: The principle which has immence use and widely used in economics is equi-marginal principle. The principle of equi - marginal utility, the principle of equi - marginal productivity are used to find out the consumer's equilibriums and producer;s equibilrium.

EQUI - MARGINAL UTILITY PRINCIPLE: Marginalulity (For consumers equibrium)

$$\frac{\text{of X good}}{\text{Price of X good}} = \frac{\text{Marginal utility of X good}}{\text{Price of Y good}}$$

(provided the consumer using too goods X and Y)

Like wise, producer's equilibrum can be find out by using two inputs A & B.

$$\frac{\text{Marginal productivity of A factor}}{\text{Price of A factor}} = \frac{\text{Marginal Productivity of B factor}}{\text{Price of B factor}}$$

These principles are of great use in business economics. However, these principles have to be consideratly refined and modified to scit the nature of modified the business interprise.

The above discussion on various principles states that economics provides a variety of broad principles which are widely used in managerial economics. These principles may not be applicable directly to the business management. Hence, they should be updated, refined in order to suit the present environment so as to reap maximum benegits from these principles.

2.4 SCOPE OF BUSINESS ECONOMICS:

Business or manegerial economics is an growing subject. As this is a developing science, it is difficult to explain the boundaries of the subject. The scope of the subject widens according to the growth of the subject. The discusion on the following fields gives the scope of business economics upto certain extent. They are

1. Demand Analysis and Forecosting
2. Cost and Production analysis
3. Pricing Decising policies and practices
4. Profit management
5. Capital Management and
6. Relationship with opther sciences

2.4.1 DEMAND ANALYSIS AND FORECOSTING: Business firms produces goods by transforming various productive resources. The production activity will be profitable only when the producer forecosts the accurate demand. Demand analysis facilitate the identification of the various factors affecting the demand for a firms product which helps the firm in manupuling the demand for its output one of the subjects that studied under business economics is demand analysis and fore costing the topics covered under this head is demand determinats, demand distinctions and demand forecosting.

2.4.2 COST AND PRODUCTION ANALYSIS: A firms profitability is depend on revenue and costs. But much on costs. The main topic under cost and production analysis are cost concepts, cost output relationships, economics and diseconomics of scale, cost control etc.

The analysis is useful to the business manager to prepare cost estimates of a range of output, identify the factors causing variations in costs and choose the cost miniming output level, taking also into consideration the degree of uncretainity in production and cost calculation.

2.4.3 PRICING DECISION, POLICIES AND PRACTICIES: The important responsibility of a business manager is pricing of the firm products. The revenue and profits of a firm are depend upon the pricing decissions, policies and practices. The impartant topics that stadied under this head are market structure analysis, pricing practices, price are costing.

2.4.4 PROFIT MANAGEMENT: the main objective of business management is profit earning and profit maximisation. The success of a business firm is estimated on profit earning economics states that profits are reward for risk bearing and uncertainity. A successful business manager tries to reduced these risks and uncertainity and tries to maximise profits. An important and challenging area is business economics is profit planning and profit measurement.

2.4.5 CAPITAL MANAGEMENT: Another important responsibility of the business manager is capital management or planning capital investment. Thisis an area studied in business economics. Capital management requires top level decissions and it implies planning and control of capital expending. The topics which covered under capital management are cost of capital rate of return and sekection of projects.

2.4.6 RELATIONSHIP WITH OTHER SCIENCES: The scope of business economics can be identified by studying the relationship with other sciences. The following discussion gives the relationship of business economics with economics, operational reserarch, statistics etc...

2.4.6(A) RELATIONSHIP WITH ECONOMICS: Economic concepts, principles or modes of thoughts are applied to business economics. Economcis has provided the tools, such as demand analysis cost analysis market analysis price determination time concepts etc... to business economics in addition, differents wings of economics namely agriculture economics, labour economics, economic development, international economics, banking, public finance, rural economics, urban economics, welgone economics etc... providing various tools and those tools are widely using in business decissions.

2.4.6(B) RELATIONSHIP WITH MATHEMATICS: Mathematics provides various mathematical tools such as geometry, trigonametry and algebra which are not only essential but certain mathematical tools and concepts such as logarithms and exponentials, vectors determinats and matrix algebra and above all calculus, differential as well as integral are the hand maids. Mathematics. These discussion states that mathematics is an important subject which closely related to business economics. It provides mathematical tools not only to business economics but who other disciplives such as psychology, sociology, statistics and engineering.

2.4.6(C) RELATIONSHIP WITH OPERATIONAL RESEARCH: Operational Research is an inter disciplinang subject. This is an out come of mathematicious, statisticious, engineers and others teamed up together and developed models and anlytical tools. Much of the developent of the tecniques and concepts such as lenear programming, inventory models, game theory etc., is due to te work of the operational reseanchers. The significant relationship between business economics and operational research can be explained by using the operational research techniques in business problems, such as allocation problems, compititive problems waiting line problems and inventory problems. The above discussion reveols that there is close relationship between business economics and operational research.

2.4.6(D) RELATIONSHIP WITH STATISTICS: Statistics is a science which provides different statistical tools that are very useful in business management. Statistics is useful for busines economics in several ways. Business economics calls for the marshalling of qualitative data and reaching useful measure of appropriate functional relationships. It emplays statistical methods for emperical testing of economic generatisations. Statistical tools such as probability are useful to provide te logic for dealing with uncertainity of events. Basing on it, the futre will be pridicted by the business managers.

2.4.6 (E) RELATIONSHIP WITH ACCOUNTING: REcording of financial operations of a busines is known as accounting and this accounting i.e. closely selected with business economics. The accounting information required for business economists to take business decessions. As such the relationship of according has been growing, the link between management accounting and managerial economics deserves special attension.

2.5 CHIEF CHARECTERSTICS OF BUSINESS ECONOMICS AND ROLE OF MANAGERIAL ECONOMIST:

The chief features of business economics can be distinguished with business management and economics importance of business economics.

(i) The nature of business economics is micro economics and it studies the problems at te level of firm or business unit.

(ii) Business economics utilises the theory of markets and enterprices from micro economics.

(iii) Business economics is pregmatic in nature and it does not involve in the oritical contriversies.

(iv) Business economics is relates to normative or welfare economics. It Prescribes norms for policy making.

(v) Lastly, Macro Economics which deals with the macro economic aspects such as national income acounting, business cycles, economic policies of the govern t etc are useful for business economics.

ROLE OF MANAGERIAL ECONOMIST:

Firms Management / Business Management is the prime responsibility of business economist. The business of a firm is infhuenced by two kinds of ffactors known as external factors and internal factors. Policy of the forernt, weather conditions, actions ofthe rivab etc are external factors there as intestment amount, workers number, quatity of output etc... are internal factors. The following are some of the responsibilities of business economists.

(i) He studies the busines environment formulate business plan by forecosting the economic environment.

(ii) He helps the management in decission making relating to internal operations of the firm.

(iii) He performs certain specified functions as consultants. further specific functions such as blemand forecosting, pricing etc will be done by business economist.

(iv) He provides generall intellegence survice i.e., providing information, vast literation to the business management.

(v) Participation of public debates on behaly of the management.

The above are some of the functions discharged by busines economist. In nut shell, he discharges multifaceted role.

2.6 SUMMARY:

Like economics, business economics also deals with scarce resources and their distribution among different uses. Business economics is also called as managent economics. Business Economics provides different economic principles for solving practical business problems. The subjects such as objectives, costs, price determination proft managent capital management etc are come under the purview of business economics. Business Economics is fastly growing subject. It has been growing and developing siphisticated principles by taking different concepts and principles boom various subjects such as economics, statistics, operational research etc. The dimension of business economics has fastly changing according to changing scinario of business.

2.7 IMPORTANT POINTS TO BE REMEMBERED:

1. Business Economics is called as management economics.
2. Economic principles such as oppertunity cost principle, marginal principle, time principle, discount principle etc., are widely using in businesseconomics.
3. Business Economics is fastly growing subject in the present scinario.
4. Business economics is very important subject in the field of business management. Now business economists are considered as very important persons in the field of business.

2.8 KEY CONCEPTS:

1. **Marginal Principle** : It is very important principle to find equibrium of consumer, producer, market etc. This is also called as incremental principle.
2. **Oppertunity, Cost** : It is the next best alternative sacrifised in order to obtain commodity.

2.9 MODEL QUESTIONS:

I. ESSAY TYPE QUESTIONS:

1. Defined business Economics and discuss its scope.
2. What is meant by business economics? Mention various economic concepts used in business economics.
3. Discuss the nature and scope of busines economics.
4. Write the scope and importance of business economics.

II. SHORT ESSAY TYPE QUESTIONS:

5. Write various definitions of business economics.
6. How economic laws are use in business economics?
7. Write the relationship of Business Economics with other sciones.

III. SHORT QUESTIONS:

8. Chief charecteristics of Business Economics.
9. Relationship of business economics with economics.
10. Relationship of business economics with operational research.
11. Business Economics
12. Scope of Business Economics

2.10 SUGGESTED READINGS:

1. Brigham, Eugene. F and Pappas, James. L : Managerial Economics
2. Seo. K.K. : Managerial Economics
3. Sivayya, K.V. Rao and Rao V.S.P. : Managerial Economics
4. Chopra P.N. : Business Economics
5. Telugu Academy : Business Economics (Telugu Version)

Lesson : 3

DEMAND, UTILITY ANALYSIS PRODUCTION THEORIES DEMAND THEORY

3.0 AIMS AND OBJECTIVES:

In this part, what is demand, types of demand, determinants of demand, law of demand and exceptions are explained. By the end of this part you should understand the following points.

* What is demand, and types of demand
* Demand Function, determinants of demand
* Law of demand
* Exceptions to demand

CONTENTS:

3.1 INTRODUCTION TO DEMAND:

Demand plays a very important role in Business sectors. Because sales and profits of a business company depends upon its demand. A firm will not live without any demand of its goods in the market. Failure and success of a firm depends on demand of the goods. A firm will mobilise resources based on the demand forecastings. Hence, business economists must study the demand and its related things.

3.2 DETERMINANTS OF DEMAND:

Demand for a good depends upon various factors. They are

1. **PRICE OF GOOD:** Price of a good depends upon its demand. A change in price leads a change in demand of a good. The demand falls when the price rises and vice versa.
2. **POPULATION:** In generally, demand for a good depends upon population of a country, and number of consumers of that country. Demand is high when the population is high and the demand is low when the population is low.
3. **INCOME AND WEALTH OF CONSUMERS:** A goods decreased is based an income of the consumers. If the income changes the quantities puchased will also change.
4. **TASTES AND HABITS OF CONSUMERS:** Demand for a good is based on tastes and habits of the consumers. Demand will change if the tastes and habits of the consumer will change.
5. **PRICES OF SUBSTITUTIONAL GOODS:** Demand for a good depends upon its substitute goods. The demand is high if then are more substitutes. Moreover, the prices of its substitutises effect its demand. For example, price of coffee effects demand for Tea. Demand for tee is high when the price of coffee is high. The demand for tea is low when the price of coffee is low.
6. **COMPLEMENTARY GOODS:** Complementary good is a related good. Demand for a good depends upon prices of its complementary goods. For example, demand socks depends upon prices of shoes.

3.3 DEMAND AND LAW OF DEMAND:

In generally, the demand for a commodity in the amount bought. But in economic tenurs demand mean economic power of a commodity arises when the person has desire you it, and has the ability and willingness to pay for it. The other words, the demand for a commodity is the amount bought at a given price and at a point of time

A peson desires to buy a car. This is his desire. However, the person has the ability to pay for it. But the person has not that ability. So, this is not demand in the same way, there is no demand for a car even though he is a million as has not desire to purchase a car. Hence, we need two things to demand for a commodity. They are desire for it and ability to buy.

LAW OF DEMAND:

The law of demand refers the relationship between price of a commodity and demand for it. The law shows, other things being equal "demand rises when the price falls and demand falls when the price rises". Hence, there is inverse relationship between price and demand.

3.4 DEMAND FUNCTION:

The function explains relationship between price of a good and demand for it is called demand function. Demand for a commodity depends upon not only its price but also on prices of other goods, income of the consumer, tastes and habits of the consumer etc., Technically this is written as :

$D = f(P, Y, P_r, t)$ where

$D =$ Demand for a commodity

$P =$ Price of the commodity

$P_r =$ Prices of substitutes and complementary goods

$Y =$ Income of the consumer

In the above equation, it is hope that Y_1, P_r, t are fixed. Hence,

$D = f(P)$

3.5 DEMAND SCHEDULE:

A table, which shows the relationship between price and demand is called demand schedule. The demand schedule refers the amounts purchased by a consumer at various prices.

Table No. 3.1

Demand Schedule

Price of Washing Machine(in Rs.)	Demand for Washing Machine
10000	40
11000	35
12000	30
13000	27
14000	22

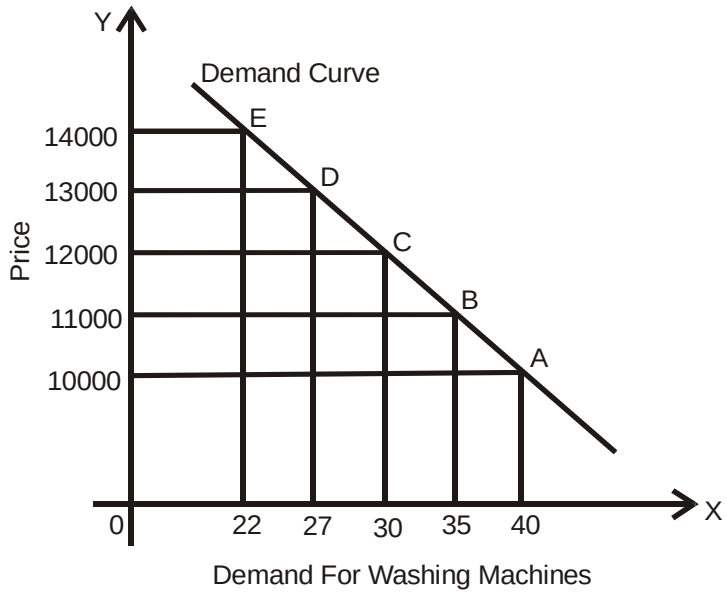
The above Table - 3.1 shows that the consumers buy washing machines at various levels of price. Basing on the table it is said that there is inverse relationship betwen price and demand.

3.6 DEMAND CURVE:

A curve, which shows the relationships between price and demand is called Demand Curve.

Diagram - 3.1

Demand Curve



In the above Diagram-3.1, we take demand for washing machines an X-axis and price of washing machines on Y - axis. It may be stated basing on the points, that the demand for washing machines are 40 at Rs. 10000 price level. If the price rises from Rs. 10000 to Rs. 110000 this demand falls from 40 washing machines to 35. In the same way the demand is decreasing when the price falls. The points A, B, C, D and E on the demand curve shows various demands at various prices. All these points are conncected by a line, is called demand curve. The demand curve slopes downwards from left to right.

3.7 TYPES OF DEMAND:

Basng on the values of the demand curves, it is divided into various types. Which the following are the main.

1. Individual demand and market demand
2. Company demand and industry demand
3. Reciprocal Demand and Autonomus demand
4. Price demand, income demand and cross demand

LET US NOW UNDERSTAND THE DEMANDS:

1. **INDIVIDUAL DEMAND AND MARKET DEMAND:** The demand of a commodity at various prices is the amount purchased during a period is called individuals demanded. The market demand is the sum totals of individual demands that are purchased at various prices.

2. **COMPANY DEMAND AND INDUSTRY DEMAND:** A group of firms or companies producing a similar product is called industry. The demand for the products of the industry is called industry demand. For example, Demand for soaps in a country is considered as industry demand. Because manufacturing companies of soaps in a country is considered as an industry. It means combination of all firms which produce same goods or close substitution, is called an industry.

   On the other hand, the demand for the product of a company is called company demand or firm's demand. For example, demand for Pears bath soap is called company demand. Because, different companies produce different soaps, all these soaps are substituties with each other. Hence, demand for all these soaps is called industry demand. Let us examine industry and company demands with an example.

   For example, the demand for all bath soaps is a certain period is 100 million units. But in that the demand for in that soap is 20 millions only. Hence the Cinthal soap's share is 20%, in the total demand. The total demand 100 millions demand is industry demand and 20 millions demand is company demand.

3. **RECIPROCAL DEMAND AND AUTONOMUS DEMAND:** Any good which may be desired for personal consumption by consumers is called Autonomus Demand or Direct Demand. For example, demand for food items, houses is called autonomous demand. Where as the reciprocal demand derived from Utonamus demand, but for construction a house we require brick, cement, iron etc., The demand for these is reciprocal demand. The demand for brick, cement depend on demand for houses. The demand for bricks rises when the demand for houses is increasing. When the demand for houses is decreasing the demand for bricks falls. In generally, demand for consumer goods is called Utomous demand and demand for producer goods is called indirect demand or reciprocal demand.

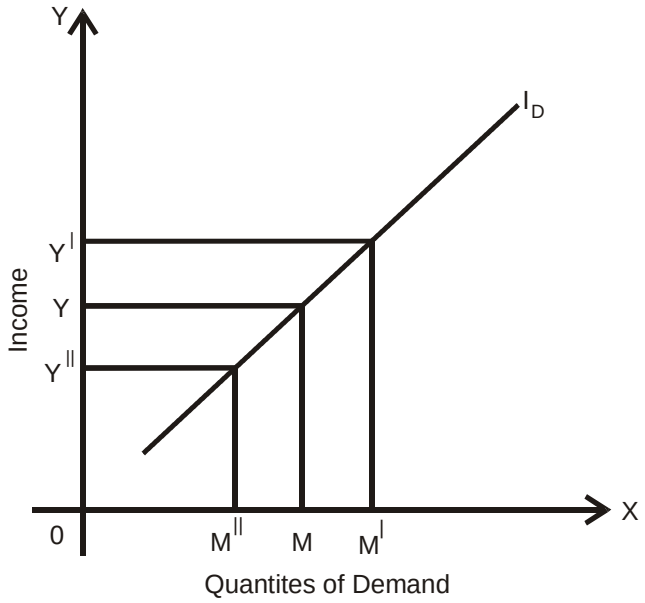
4. **PRICE DEMAND, INCOME DEMAND AND CROSS DEMAND:** Other things being constant, the relationship between price and demand is called price demand. Price demand relationship is indirect or inverse. Other things being equal, a fall in price extends developed and a rise in price contracts demand.

   Other things being equal, the relationship between income and demand is called income demand. The income demand relationship is direct.

   Cross demand refers the relationship between prices of substitutes and complementary goods and theiry demand, when other things being the same. The relationship between price of substitutions and its demand is directly proportional. The relationship between price of complementary good and its demand is inverse.

   The following diagram - 3.2 shows income demand. Generally, demand increases when income is increasing Demand decreases when income is decreasing

Diagram - 3.2
Income Demand



In the above diagram - 3.2, I_D is income demand curve. OM is the demand at OY level of income. The demand increases from OM to OM' as income increased from OY to OY'. If the income decreased from OY to OY'' the demand also decreased from OM to OM''.

Cross demand curve is shown in the following diagrams.

Diagram 3.2(A)
Substitute goods

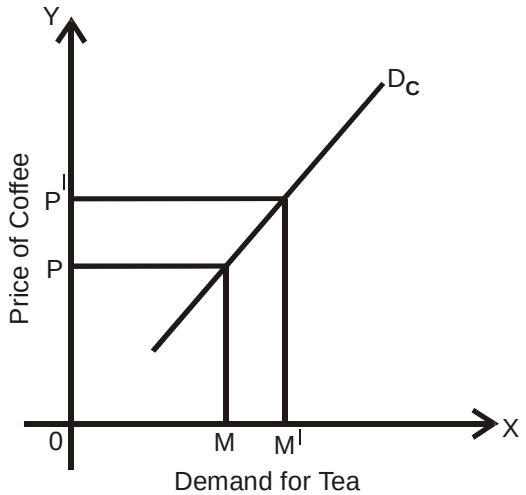


Diagram 3.2(B)
Complementary goods

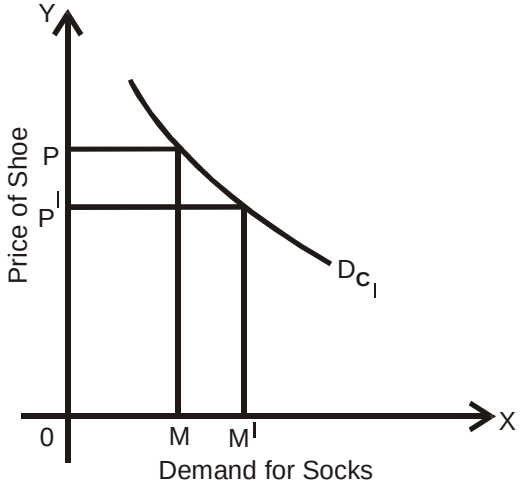


Diagram 3.2(A) shows cross demand for substitute goods and considered tea and coffee are as substitutes. It may be observed from the diagram - 3.2(A), as the price of tea rises, demand for coffee increases as people tend to substitute coffee for tea. The cross demand curve slopes upwards from left to right in the case of substitutes. When the price of tea is P the quantities of coffee powder purchased in OM. When the price of the rise from P to P' the demand for coffee increased from M to M'.

Diagram - 3.2(B) shows cross demand for complementary goods, shoe and socks. It may be observed from this diagram - 3.2(B) as the price of shoes falls, demand for socks increase. The cross demand curve in the case of complementary goods slopes downwards from left to right. When the price of shoe in P the decrease for socks in OM. When the price shoe falls from P to P', the demand for socks increased from OM to OM' as shown in the diagram 3.2(B),

3.8 REASONS FOR DOWNWARD SLOPING FROM LEFT TO RIGHT OF A DEMAND CURVE:

Generally, the demand curve slopes downwards from left to right. We understand the function of law of demand as UK study the reasons for downward slopping of a demand curve. The reasons are as follows.

1. As there in inverse relationship between price and demand the decreased curve slopes downward from left to right.
2. The law of demand based on the law of diminishing marginal utility. According to the law of diminishing marginal utility each succeeding unit of a commodity gives less satisfaction then the preceeding unit. Hence, for each additions unit a consumer is willing to pay a lower price. As the price falls, he tends to buy more and more units. As the price falls he tends to buy less and less units. Hence, the demand curve falls downwards from left to right.
3. Further, a fall in price indules old buyers to buy more and attracts new buyers. It causes to increase in demand. A rise in price deducts purchasings of goods. It leeds to decrease in demand. This is one of the reason for downward sloping of a demand curve.
4. Substitution and income effects are considered as price effect. Income of the consumer effects the quantity of demand. This is medium effect. The real income of consumer will increase where prices of goods decreased. It leads to increase in purchasing of goods. For example, a fall in price leads to buy more milk. A rise in the price of milk leads to buy less quantity of milk. That is why the demand curve slopes downwards from left to right.
5. Changes in the policy of substitution goods effect on demand. This is called substitution effect. For example, as the price of coffee rises, keep the price of tea fixed, the demand for tea increases as people tend to substitute tea for coffee. Hence, the demand for coffee decreases. Thus, in the case of substitutes the demand curve slopes downwards from left to right.

6. The demand may be effected may not only by the above goods but also some of the other goods. As the price of a commodity falls it is put to more and more uses. As the price of a commodity rises it is put to less and less urgent uses. For example, if the price of electricity is lowered, the households may use electricity for looking and heating purposes also.

3.9 EXCEPTIONS TO THE LAW OF DEMAND:

There are some exceptions to the law of demand. There exceptions an aganist to the law of demand. The following are the same of exceptions to the law of demand.

1. **SUPERIOR GOODS:** Demand for some goods is high, because of their high prices. The consumer of such goods measure their desirability may their prices. For example diamonds and jewellery etc. The consumer estimates his status by their prices. Hence, they buy less of these goods at lower prices and it leads decreases in demand instead of increase. They buy more of these goods at higher prices. It needs to increase in demand instead of decrease.

2. **GIFTEN GOODS:** According to Sir. Robert Giffen the law of demand does not apply to necessary goods. This is called Giffen paradox. As rise in prices of necessaries goods leads to increase in demand for then. For example, a rise in the price of rice caused a severe fall in the real income of the poor people that they were forced to curtail consumption of other expenses and buy more of it, even its price rise. Thus, the demand for rice is constant even its price rise. This is called Giften's Paradox.

3. **SPECULATION BUSINESS:** People even a further rise in price, buy larger quantity than before is called speculations business. A speculative person purchases larger quantitites when a rise in price and smaller quantities where a fall in price. Hence, a rise in price leads to increase in demand. Thus, speculation business is one of the exception for the law of demand.

3.10 SUMAMRY:

The demand for any thing at a given price is the amount of it which will be bought per unit of time at that price. This is effected my desire and purchasing power. The consumer buy more at lower price and less at higher price. The relationship between price and demand is inverse. Necessaries, Giffen goods and speculative business are exceptions to the law of demand. The relationship between income and demand is called income-demand. The relationship between the prices of substitute and complementary goods and its demand is called cross demand.

3.11 POINTS TO REMEMBER:

1. The demand for anything at a given price is the amount of it. Demand requires desire and ability to buy.

2. Demand for a commodity depends upon price of it, prices of substitutes and complementary goods, income tastes and habits, population etc.

3. The relationship between price and demand is called demand schedule. A curve which shown this relationship is known as demand cruve.

4. The relationship between price and demand in inverse. The relationship between income and demand is positive incase of superior goods and it is negative in case of inferior goods. The relationship between the price of substitute goods and its demand is positive incase of substitute goods and it is negative in case of complementaries. The relationship between this price of complementary goods and its demand is inverse.

5. Giffen goods, superior goods and speculation business are got apoplicable to the law of demand. Hence, these are exceptions to the law of demand.

3.12 KEY CONCEPTS:

1. DEMAND : The demand for any thing at a given price is the amount of it.

2. LAW OF DEMAND : Other things being equal, demand rises when a fall in price, and demand falls where a rise in price.

3. SUBSTITUTION GOODS : A good which is used to represent of another good is called substitute good. For example, tea and coffee.

4. COMPLEMENTARY GOOD : A good, which is used along with other good is called complementary good. For example milk and sugar is used to make coffee.

5. CROSS DEMAND : The relationship between price of substitute or complementary good, and it's demand.

3.17 MODEL QUESTIONS FOR EXAMINATIONS:

I. ESSAY QUESTIONS:

1. Explain the law of demand and write its exceptions.

II. SHORT QUESTIONS:

1. What is demand? Write different types of demands.
2. Explain the law of demand.
3. Why the demand slopes downwards from left to right?

III. VERY SHORT QUESTIONS:

1. Demand Function
2. Reciprocal Demand
3. Individual Demand and Market Demand
4. Company Demand and Industry Demand.

3.14 SELECTED READINGS:

1. Watson - Price Theory and Its uses
2. K.K. Dewett - Modern Economic Theory
3. M.L. Jhingan - Advanced Economic Theory
4. P.A. Samuelson - Economics
5. Stonier and Hogue - Micro Economic Theory
6. G.E. Fuguson - Micro Economic Theory
7. R.G.D. Allen - Mathematical Analysis for Economics
8. R.A. Bilas - Micro Economic Theory
9. Telugu Academy - Vypara Arthesasterm

Lesson : 4

UTILITY ANALYSIS

4.0 AIMS AND OBJECTIVES:

Utility analysis is an important topic in this economics. The main objective of the consumer in the purchasing of goods and services in to satisfy his wants. In this part we should understand the consumer is in equilibrium in the purchasing of goods. By the completion of this point the students understand the following things.

* What is utility
* Types of Utility Analysis
* Law of diminishing marginal utility
* Law of Equi-Marginal utility
* Theory of Consumer surplus

CONTENTS:

4.1 CARDINAL UTILITY ANALYSIS, ORDINAL UTILITY ANALYSIS:

Utility analysis is an important topic in this economics. The main objective of the consumer in the purchasing of goods and services is to satisfy his wants. In this point we should understand who the consumer is in equilibrium in the purchasing of goods. By the completion of this point the students understand the following things.

What is utility

Types of Utility Analysis

Law of diminishing marginal utility

Law of Equi-Marginal utility

Theory of Consumer Surplus

There are two analysis to study the consumer's behaviour. They are 1. Cardinal Utility Analysis, 2. Ordinal Utility Analysis.

The word utility denotes the want satisfying power of a commodity or service. In general, the meaning of utility and usefulness is one and the same. The same good may give different utilities to different persons.

According to cardinal utility analysis, utility can be measured in members, or in units. By utility in psychological concept. So it can not be measured in terms of member or units. However, utility can be compared. Good A gives more satisfaction or less satisfaction then good B. but we cannot say by how much utility of one good is more or less than the utility of another.

Basing on cardinal utility analysis, law diminishing marginal utility, law of equi-marginal utility and the theory of consumer surplus were explained. These theories are explained as under.

4.2 LAW OF DIMINISHING MARGINAL UTILITY:

A German economist, Gossen was the first to explain the law. That's way this was called as Gossen's first law. Later Alfred Marshall gave a precise explanation to the law and named as law of diminishing marginal utility.

The law shows that the relation stays between a good and its utility. Marshall says "The additional benefit which a person drives from a given increase of stock of anything diminishing with every increase in the stock that he already has". The law based on the following assumptions.

4.2.1 ASSUMPTIONS:

1. Utility is measurable.
2. All the units of a commodity must be homogeneous.
3. There is a possibility to increase or decrease the quantity of goods.
4. The unit must be consumed in quick succession with equal time interval.
5. No change in the income of consumer.
6. then shall be not any change in the price of the commodity and the consumer know the price of goods.
7. There shall be not any change in the price of its substitutes.
8. The tastes and habits of consumer must remain unchanged.
9. The consumer must be rational in his conduct. It means consumer tries to get more satisfaction.

4.2.2 STATEMENT OF THE LAW: Based on the above assumptions the law of diminishing marginal utility was explained by Marshall. Marshall states the law thus : "The additional benefit which a person derives from a given increase of unit stock of a thing diminishes with every increase in stock that already has". According to Marshall marginal utility is zero when total utility maximum. At the point the consumer is in equilibrium. The same thing in explained is the following diagram.

4.2.3 ANALYSIS OF THE LAW THROUGH TABLE: Let us suppose that a consumer is f and q apples. As he consumers are apple after another he derives less and less satisfaction. We show this tendency with an imaginary table given below:

TABLE NO. – 4.1

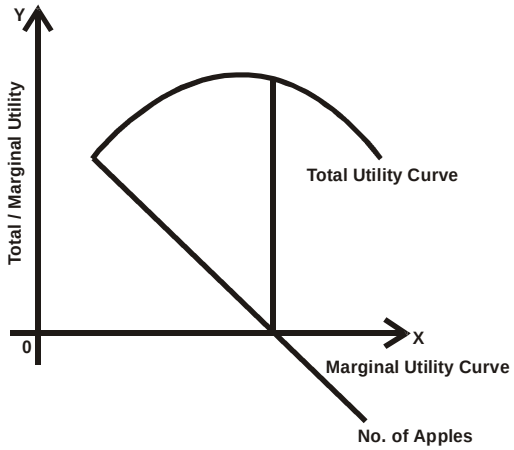
TOTAL UTILITY

Quantity of Apples	Total Utility	Marginal Utility
1	20	20
2	38	18
3	53	15
4	63	10
5	63	0
6	50	- 13

From the above table it is sent that the marginal utility is decreasing when the quantity of increased. The total utility is increasing upto 5th appeal and then decreasing. At the 5th apple the marginal utility is zero when the total utility is maximum. At this stage the consumer is in equilibrium.

4.2.4 DIAGRAMMATIC REPRESENTATION: We show the above information in the following diagram.

Diagram – 4.1



In the above diagram we takes No. of apples as X – axis, Total and marginal utility on y – axis. Total utility curve shows that the satisfaction derived from the whole stock. The total utility curve shows that the addition to total utility resulting from the consumption of one more unit. The marginal utility curve slopes down towards from left to right. Marginal utility is zero when total utility is maximum. At this stage the consumer is in equilibrium.

4.2.5 EXCEPTIONS TO THE LAW: The law of diminishing marginal utility has the following exceptions.

1. The law does not applicable to drinkers. A drinker thinks that the additional unit of wine gives additional satisfaction with out diminishing rates. But economists say that the law is applicable to drinkers after a peak stage.
2. In the case of rare collections, the law does not hold good. If, for instance a man is collecting ancient coins, the more he is able to collect the greater will be his satisfaction. Hence, in such cases, the law does not hold good.
3. The does not applicable to misers as it is said that more money he has, the more he wants.

4.2.6 CRITICISM: Some economists criticised Marshall's law of diminishing marginal utility as the following grounds.

1. Utility is psychological concert. So, it is not measurable.
2. The law apply does in the case of one good only. But does not apply to many goods.
3. The law does apply within a certain time and homogeneous goods. Otherwise, the law will not apply.
4. If tastes and habits of the consumer is changed the law will not apply.
5. All goods are not independent goods.
6. The law does not explains price and substitution effects.
7. The marginal utility of money is not constant always.

4.2.7 IMPORTANCE OF THE LAW:

1. This law forms the basis of the theory and practice of taxation. Progressive system of taxation is based on this law.
2. The law shows that value of goods is decreases when the quantity or supply of goods increased.
3. The law explains that why the demand curve slopes downwards. In other words, demand curve is a marginal utility curve.
4. It shows the difference between the value-in-use and value-in-exchange.
5. The law shows that the re-distribution of wealth in favour of the poor. The marginal utility to the rich of the wealth, that they might lose, is not so great as the marginal utility of the wealth which is transferred to the poor.
6. Some of the economic theory like law of demand, theory of equi-marginal utility, the theory of consumer surplus, elasticity of demand, are based on this law.
7. The law explains water demand and paradox.

4.3 LAW OF EQUI-MARGINAL UTILITY:

The law of diminishing marginal utility explains satisfaction derived by a person from successive goods. The law of equi-marginal utility shows marginal utility have been equalised,

through the process of substitution that we get maximum satisfaction. This law was framed by Gossen, but later it was explained by Marshall as theory. This law is based on the following assumptions.

4.3.1 ASSUMPTIONS:

1. Utility can be measured.
2. No change in the income of consumer.
3. The prices of substitution goods are remain unchanged.
4. The law of operates based on the law of diminishing marginal utility.
5. the tastes and habits of consumer are fixed.
6. The marginal utility of money is fixed.
7. The main aim of consumer is deriving the greatest amount of satisfaction.

4.3.2 STATEMENT OF THE LAW: Basing on the above assumptions, Marshall states the law thus : "If a person has a thing which he can put to several uses, he will distribute it between these uses in such a way that it has the same marginal utility in all". Take two goods A and B and marginal utility and prices are the same. Then the consumer is in equilibrium. This gives us the rule.

$$\frac{MV_A}{P_A} = \frac{MU_B}{P_B}$$

4.3.3 ANALYSIS OF THE LAW THROUGH TABLE: The consumer starts with Rs. 10 of income that he can spend. He is comfronted with prices of A, B goods. The price of each good is one rupee. Then the consumer is ready to spend his income on these two goods by increasing his satisfaction by substituting are good for the other until the marginal utility of money is the same in both the cases. The following table gives these details.

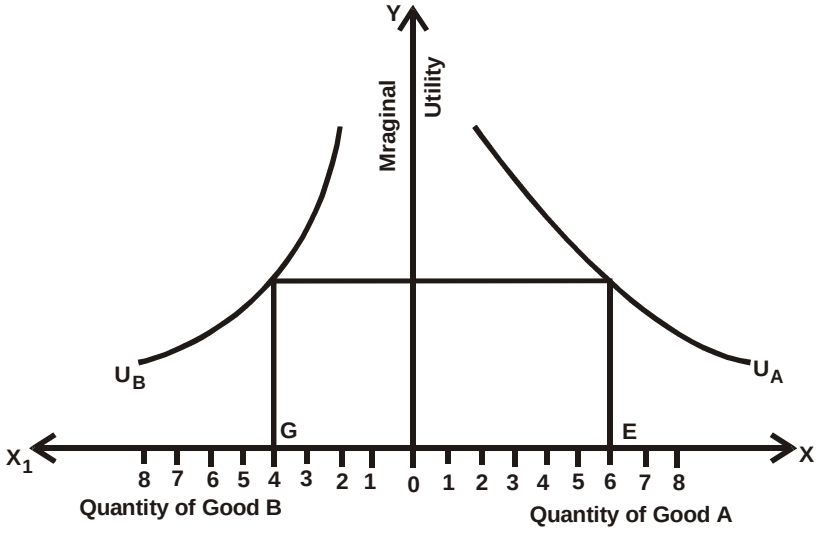
Table 4.2

Quality	Marginal Utility of Good A	Marginal Utility of Good B
1	40(1)	34(3)
2	36(2)	28(5)
3	30(4)	26(6)
4	24(7)	20(8)
5	16(9)	14(10)
6	10	10
7	8	9

From the above table, the consumer will spent his first and second rupees on good A. But the third rupee will spend on Good B and again the fourth rupee will spend on good A. The consumer gains by pushing his purchase of commodity upto his amount becomes zero. As long as the marginal utility of two goods is equal, the consumer buys more of the commodity. It means he will purchased 6 units of good A and 4 units of good B. Then he is in equilibrium.

4.3.4 DIAGRAMMATIC REPRESENTATION: In the following diagram, we take quantities of A, B are goods as X-axis, marginal utility of A and B goods as Y axis.

Diagram - 4.2



In the above Diagram U_A shwos the marginal utility curve of good A, U_B shows the marginal utility curve of good B. The consumer will buy upto the marginal utility of A and the marginal utility of B an equal. Hence, the consumer buys OE level of A good, and OG level of B good. The consumer is in equalibrium. At this stage

$$\frac{MU_A}{P_A} = \frac{MU_B}{P_B}$$

4.3.5 CRITICISM: The law of equi-marginal utility was criticised on the following grounds.

1. Utility is psychological concept. There is no calculate.
2. Every good has complementary and substituting goods. But this law does not explain its effects.
3. This law does not apply, if the income of the consumer is changed.
4. The consumer

5. This law does not apply if the tastes and habbits of consumer is cahnged.

6. Marginal utility of money is not constant always.

4.3.6 IMPORTANCE: In the real world, the law of equi-marginal utility analysis is famous in the following grounds.

1. The theory explains how a consumer get maximum satisfaction.

2. The law of ..... is based on the law of equi-marginal utility.

4.4 CONSUMER SURPLUS:

The theory of consumer surplus is based on the theory of demand. In other words the theory of consumer surplus is based on the law of diminishing marginal utility. The theory of consumer surplus was first developed by Duppit, a French engineer. Marshall called it as consumer's rent, later he analysed as consumer surplus. Afterwords, Hicks criticised this theory and analysed another utility theory, known as ordinal utility analysis.

The price which we pay for certain things do not measure their real worth. It means do not measure their real worth. It means that they give satisfaction more than the prices. Thus, there is surplus satisfaction the best examples of commodity giving surplus satisfaction and salt, post card, news paper etc.

Marshall says "The benefit which he gets from purchasing at a low price thing for which he would be willing to pay a high price than go without them, may be called consumer's surplus.

Consumer's Surplus = Demand Price - Market Price (or)

Consumer surplus = Price willing to pay - Price Actually paid

The theory of Consumer's surplus is based on the following assumptions.

4.4.1 ASSUMPTIONS: Marshall's theory of consumer's surplus theory is based on the following assumptions.

1. Utility is measurable.

2. The income of the consumer is fixed.

3. Every good is an independent good. It means utility of a good depends upon its quantity.

4. The marginal utility of money is constant.

5. Perfect competition situation exists in the economy.

4.4.2 ANALYSIS OF THE THEORY: The concept is deduced from the law of diminishing marginal utility. According to this law, the price which a consumer pays for a commodity equals marginal utility. It means that all the units of marginal utility are equal to the price which the consumer pays for commodity. Basing on this the following table is formed.

Table - 4.3

Goods	Total Utility (in Rs.)	Marginal Utility (in Rs.)	Price actual paid in (Rs.)
1	20	20	15
2	38	18	15
3	53	15	15
4	64	11	15

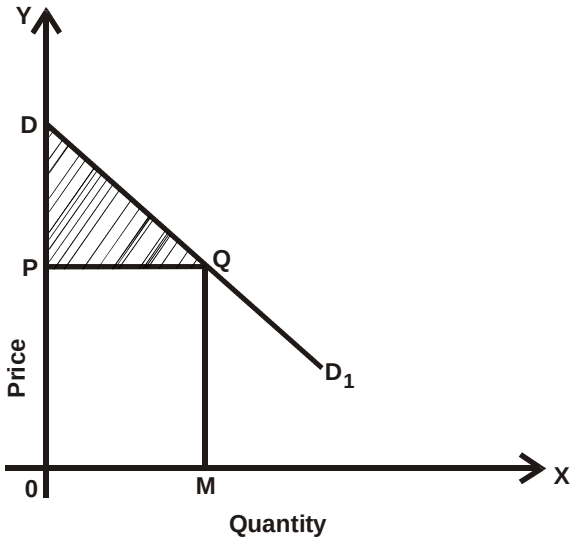
Let us suppose price of a good is Rs. 15. According to the Table 3.3, the consumer is willing to pay Rs. 20 to purchase the first good. Because the consumer gets Rs. 20 of marginal utility. But in the market price of the good is Rs. 15 and consumer pays it. So, the consumer's surplus is Rs. 5(20-15). The consumer is interested to buy the second good at the rate of Rs. 18. But the market price of the good is also Rs. 15. So, on the second good the consumer's surplus is Rs. 3 (18 – 15). To purchase the third good the consumer is willing to pay Rs. 15. But this equal to market price. Hence, the consumer's surplus is nil. To purchase 4th good, the consumer is interested to pay Rs. 11, but the market price is Rs. 15. Hence the consumer did't purchase the 4th good. In total, the consumer is interested to pay Rs. 53/- (20 + 18 + 15) to purchase first, second and third goods. But actually he paid Rs. 45/- (15+15+15) only.

Consumer's surplus = Demand Price – Market Price

Consumer's surplus = Rs. 53 – Rs. 45 = Rs. 8

4.4.3 DIAGRAMMATIC REPRESENTATION: To explain the theory of consumer's surplus. We take quantity on X-axis, price on Y-axis. DD' is a curve shows the demand curve or marginal utility curve. This curve shows that the additional benefit which a person derives from additional good. The curve slopes from left to right.

Diagram – 4.3



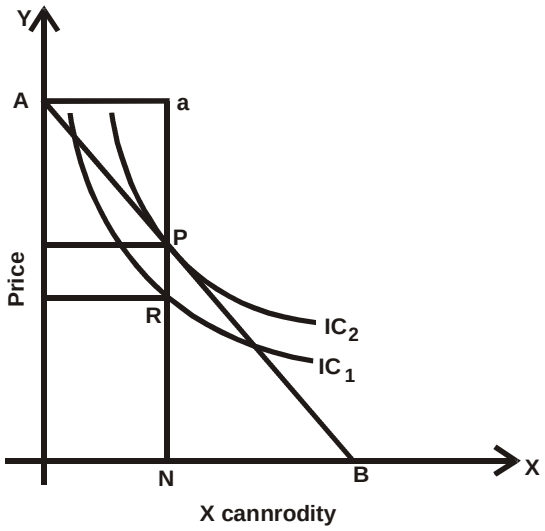
In the above diagram –3.3, the consumer buys OM level of quantity and pays OPQM. The total utility derived by him is ODQM. In other words the consumer is willing to pay ODQM price level but pays OPQM. So the surplus is PDQ.

Consumer's surplus = ODQM – OPQM = PDQ.

4.4.4 CRITICISM: The concept of consumer's surplus is criticised by Gobi, Tossing, Hicks, Samuleson etc. According to them theory is based some unrealistic assumptions. Moreover, there are so many difficulties to measure surplus.

4.4.5 ANALYSIS OF HICKS: Hicks analysed the theory of consumer's surplus through indifference curve analysis. The consumer's surplus is analysed in the following diagram.

Diagram – 4.4



In the above diagram, we take x commodity on X – axis, price on Y – axis. From the diagram, the consumer buys ON level of x commodity and paid QR price level. At this stage the consumer is on the IC, indifference curve. But ON level of x commodity is available at QP price level. Hence the consumer shits from IC1 to IC2. Therefore the consumer's surplus is PR.

Willing price or demand price (QR) – Actually paid (QP) = Consumer's surplus (PR)

4.4.6 IMPORTANCE:

1. **Economic Policies:** It is useful to the governments in framing and implementation economic policies.
2. **Taxation Policy:** The concept is of special importance in taxation. The in-position of a tax on a commodity raises its price and reduces consumer's surplus. The government applies this law in the in-position of taxes.

3. **Monopoly:** The concept is useful to the monopolist in fixing the price of his product. The monopolist tries to maximise his profits. Through increase prices of his goods.

4. **International Trade:** The consumer's surplus theory is ……. in exporting and importing of goods in the international trade.

5. **Value-in-use and Value-In-Exchange:** The concept is useful to say difference between value-in-use and value-in-exchange.

6. **Economic Welfare:** The theory of consumer's surplus is useful to tax same measures to develop economic welfare.

4.5 CONCLUSION:

The capacity of a commodity to satisfy a human want is called utility. These are two approaches to analyse a consumer's satisfaction which derives from utilisation of a good. According to the first approach utility is measurable which known as cardinal utility analysis. The second approach shows utility is cost measurable but comparable which known as ordinal utility analysis.

Basing the cardinal utility analysis the law of diminishing marginal utility analysis, law of equi-marginal utility analysis, theory of consumer's surplus was analysed. These three theories are very important in economics. But despite of same drawbacks in the theories J.R. Hicks analysed the ordinal utility approach.

4.6 POINTS TO REMEMBER:

1. Cardinal utility analysis is changed as the basis of utility is un-measurable. It is also known as Marshall's utility analysis.

2. Ordinal utility analysis is analysed as the basis of utility is not measurable but comparable. It is known as Hicks utility analysis. According to this law, utility is a psychological feeling.

3. The law of diminishing marginal utility is analysed a consumer's equilibrium with one commodity. Whereas law of equi-marginal utility analysing in explained a consumer's equilibrium with two or more commodities.

4. The theories are very important in economics. The theories are useful to from taxation policy, in international trade etc.

5. These theories are based on the cardinal utility analysis. But this approach was criticised by some economists like Hicks and developed another approach known as ordinal utility analysis.

4.7 KEY CONCEPTS:

1. **Utility** : The capacity of a commodity to satisfy a human want.

2. **Marginal Utility** : Additional benefit from additional good.

3. **Average Utility** : Division of total utility by number of commodity

4. **Consumer's Surplus** : The difference between demand price and market price.

5. **Progressive Taxes** : Tax rates are increased if the income increases.

4.8 MODEL QUESTIONS FOR EXAMS:

I. ESSAY QUESTIONS:

1. Critically explains the theory of diminishing marginal utility analysis.

Ans: Write the law of diminishing marginal utility analysis, assumptions, limitations and importance.

2. Explain the law of equi-marginal utility analysis.

3. Explain the theory of consumer's surplus.

II. SHORT QUESTIONS :

1. Marginal Utility

Ans: Write the marginal utility with diagram.

2. Explain the limitation for law of diminishing marginal utility.

Ans: Write limitations of law of diminishing marginal utility.

3. Importance of law of diminishing marginal utility.

Ans: Write the importance of law of diminishing marginal utility.

4. Assumptions the law of diminishing marginal utility.

Ans: Write assumptions of law of diminishing marginal utility.

4.9 SELECTED READINGS:

1. Stingler, G.J. : The Theory of Price
2. Watson, D.S. : Price Theory and its uses
3. Gould, J.P. & Ferguson, C.E. : Micro Economic Theory, Micro Economic Theory.
4. Ahuja, H.L. : Principles of Micro Economics
5. Seth, M.L. : Principles of Economics
6. Jhingan, M.L. : Advanced Economic Theory
7. Telugu Academy : Economic Theory

Lesson : 5

ELASTICITY OF DEMAND

5.0 AIMS & OBJECTIVES:

In the previous chapter we have studied demand for a commodity depends upon the price of it. A fall in the price, leads generally to a change in demand. But the result is not the same in the case of all goods. Even the same goods have different demands at various times. For example, the demand for a good like salt is not very much affected by change in its price. On the other hand, change in the price of a good like Television sets to exert a considerable influence on the demand for them. The elasticity of demand refers the change in price leads to a change in demand. By the completion of this part you should understand the following things.

* Elasticity of demand
* Types of elasticity of demand
* Methods of measuring elasticity of demand
* Determinates of elasticity of demand

CONTENTS:

5.1 INTRODUCTION:

We have studied the law of demand, which shows that demand increases with a fall in price, and diminishes with a rise in price. It means a fall in price leads to a rise in demand and vice-versa. But we can not understand that how much change in price leads to how much change in demand. This is shown by elasticity of demand.

Some times demand varies much and at other times little due even to the same change in price. There are certain goods whose demand does not contract much with the risk in their prices. While them goods whose demand contracts much with the rise in their prices. Demand increases with a fall in price, and diminishes with a risk in price. Hence, the business men determines price of his selling goods basing demand for them. They divides profit or loss basing on price. Hence, there is a need to understand the elasticity of demand.

5.2 ELASTICITY OF DEMAND DEFINITION:

In generally, elasticity means that an increase. But in economics elasticity means that may an increase or decrease. Elasticity of demand means change in price leads to a change in demand. It means that a rise or fall in price causes to a rise or fall in the demand is the elasticity of demand.

5.3 ELASTICITY OF DEMAND - TYPES:

In generally, elasticity makes that an increase. But in Economics elasticity means that may an increase or decrease. Elasticity of demand means change in price leads to a change in demand. It means that a rise or fall in price causes to a risk or fall in the demand in the elasticity of demand.

As we studied earlier times are certain factors which are determining the demand. Basing on the important factor of them, the elasticity of demand is classified in to three types. They are:

1. Price Elasticity of Demand
2. Income Elasticity of Demand
3. Cross Elasticity of Demand

5.4 PRICE ELASTICITY OF DEMAND:

Price elasticity of demand refers the ratio percentage change in quantity demanded in response to a percentage change in price. Symbolically, it is shown as under.

$$\text{Price elasticity of demand (n)} = \frac{\text{Proportionate change in quantity demanded}}{\text{Proportionate change in price}}$$

$$= \frac{\text{Change in demand/previous demand}}{\text{change in price/previous price}}$$

Basing on the elasticity is shown as symbols. Let us take an example, oa is the price of a good. ob is the quantity demanded. If the price falls from oa to oa_1 leads to increase in demand from ob to ob_1, change in price $(oa - oa_1)$ is oa_1 and change in demand $(ob_1 - ob)$ is bb_1. Now substitute these symbols in the above formulae, we get

$$n = \frac{ob_1 - ob}{ob} \div \frac{oa - oa_1}{oa}$$

$$= \frac{bb_1}{ob} \div \frac{oa_1}{oa}$$

Symbolically change in indicated as Δ

Hence,

$$n = \frac{\Delta b}{ob} \div \frac{\Delta a}{oa} \quad \text{or} \quad \frac{\Delta b}{ob} \times \frac{oa}{\Delta a}$$

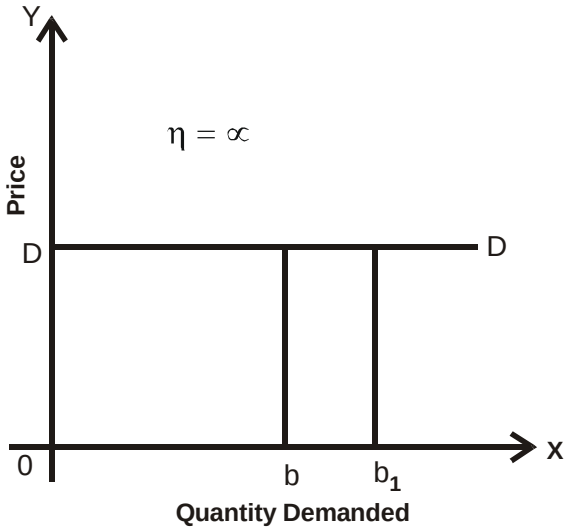
Types of Price Elasticity of Demand :

On the basis of numerical value of the elasticity of demand, we can classify the price classification of demand into five types. If the price elasticity of demand is equal to one, it is contains elastic demand. The price elasticity of demand is greaer than one, it is relatively elastic demand. The price elasticity of demand is less than one, it is relatively inelastic demand. The price elasticity of demand is infinitive, it is perfectly elastic. The price elasticity g is zero, it is perfectly inelastic. Different types of elasticity of demands are explained here under.

5.4.1 PERFECTLY ELASTICITY OF DEMAND: If a change in price of a commodity causes an infinitive large change in quantity of demand is called perfectly elastic demand. Symbolically, it is shown as ∞ (infinitive).

The perfectly elastic demand curve slopes horizontally as shown in the following diagram.

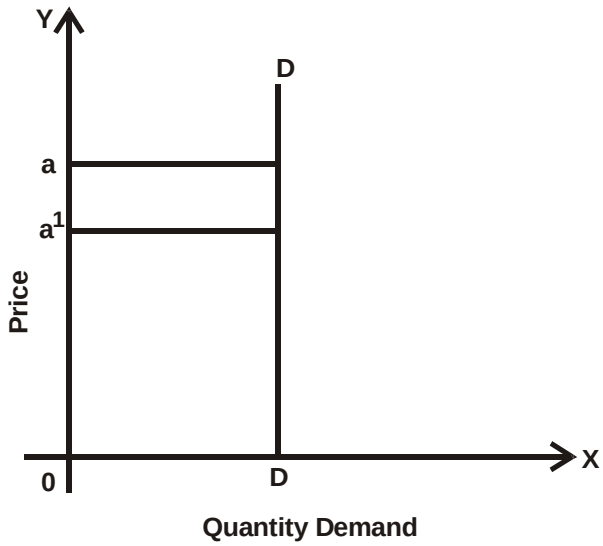
Diagram 5.1
Perfectly Elasticity of Demand



In the diagram 5.1 we take quantity demand on OX - axis and Price on OY - axis DD is the demand curve. From the diagram 5.1 there is an infinitive change in demand without any respond in price. Hence, the demand curve is a horizontal straight line parallel to OX - axis.

5.4.2 PERFECTLY INELASTICITY OF DEMAND: When whatever the changes in price, there is absolutely no change in demand is called perfectly inelastic demand. It means the elasticity of demand is zero $(n = 0)$. This curve is a vertical straight line parallel to Y - axis. This is shown in the following diagram 5.2.

Diagram 5.2
Perfectly Inelasticity of Demand

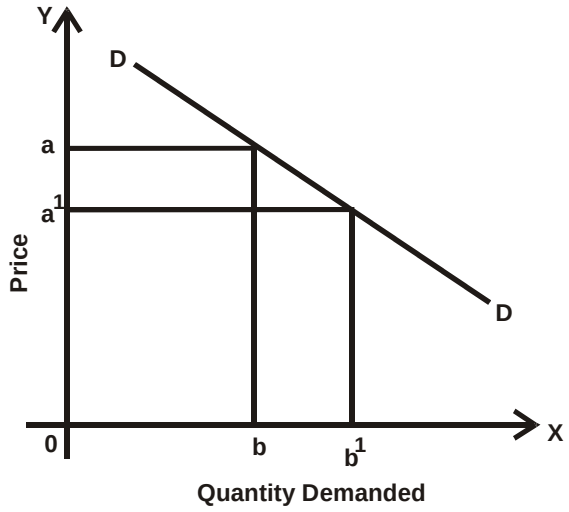


In the diagram 5.2, we measured quantity demanded on OX – axis, and price on OY – axis. Basing on the diagram – 5.2. Even the price changes or decreases from OA to OA, then is no change in quantity demanded. This is called perfectly inelastic demand.

5.4.3 RELATIVELY ELASTICITY OF DEMAND: When the change in demand is more than proportionate change to the change in prices is called relatively elastic demand. The slope of relative elastic demand curve is less. This is shown in the following diagram - 5.3.

Diagram - 5.3

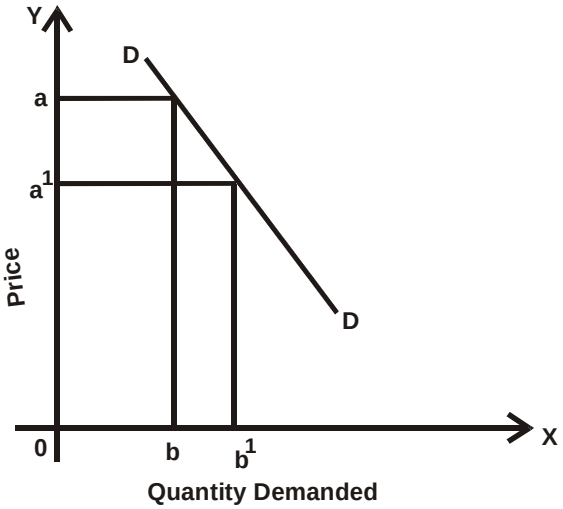
Relatively Elasticity of Demand



In the above diagram 5.3, DD is the demand curve, when the price falls from oa to oa_1, the demand increases from ob to ob_1. It means the proportionate change in demand $(b\,b_1)$ is greater than to the proportionate change in price $(a\ a_1)$. Hence, the elasticity of demand is greater than one $(n > 1)$.

5.4.4 RELATIVELY ELASTICITY OF DEMAND: If, the change in demand is less than proportionate to the curve in price is called relatively inelastic demand. The slope of this curve is more. This is shown in the following diagram - 5.4.

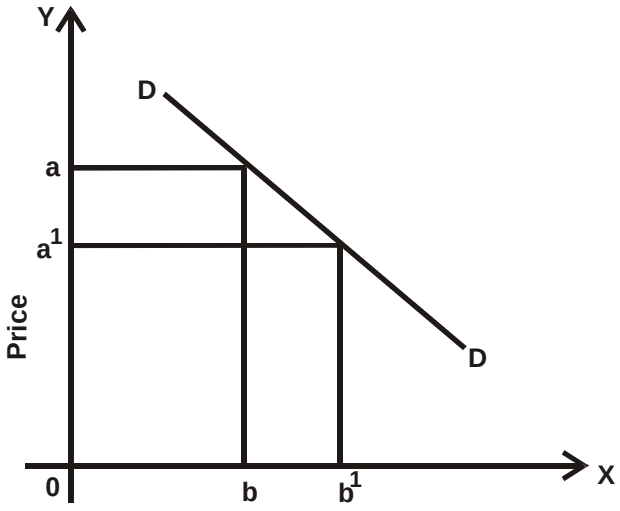
Diagram - 5.4
Relatively Inelasticity of Demand



In the above diagram - 5.4, DD is the demand curve. When the price falls from oa to oa', the demand increased from ob to ob'. It means that the change in demand (bb') is greater than the change in price (aa'). This is called relatively inelastic demand. The value of demand is less than one $(n<1)$.

5.4.5 UNITY ELASTICITY OF DEMAND: When the change in demand is exactly proportionate change to the change in price is called unitary elastic demand. Thus, the elasticity of demand in this case is unitary. Such a curve is called equilateral or rectangular hyperbola. This is shown in the following diagram - 5.5.

Diagram - 5.5
Unitary Elasticity of Demand



In the above diagram - 5.5, the change in price equal to the change in quantity demand. This is called unitary elastic demand. The value of elasticity of demand in this case is equal to one $(n=1)$.

5.5 METHODS OF MEASURING ELASTICITY OF DEMAND:

These are five methods to measure elasticity of demand. They are

1. Slope of the demand curve method
2. Percentage method
3. Point method
4. Arc method
5. Total expenditure method

These methods are analysed here under.

5.5.1 SLOPE OF THE DEMAND CURVE METHOD: This is a traditional method. Which measurers the elasticity of demand. It is cccustomary to measure elasticity with the gradient of a demand curve. A flat curve shows elastic demand and a step curve less elastic demand.

A curve in the natum of a 45^0 line from Y - axis portarays unit elasticity. But the slope of the curve is not a reliable indicator of the degree of elasticity. The same curve may have different elasticity at the various points on a demand curve. This method of measuring elasticity is helpful only in the case of straight line curves on a graph with logarithmatic scales over a small range of price and quantity. In fact, this method speaks of the slope of the demand curve and that of the elasticity of demand. For this we pass on to the other methods.

5.5.2 THE PERCENTAGE METHOD: The percentage method is one of the most satisfactory methods of measuring elasticity of demand. According to this method, the following formula can be used to measure elasticity of demand.

$$\text{Elasticity of demand (n)} = \frac{\text{Percentage in amount demand}}{\text{Percentage change in price}}$$

$$= \frac{\dfrac{\text{change in amount demanded}}{\text{previous demand}} \times 100}{\dfrac{\text{Change price}}{\text{Previous price}} \times 100}$$

If, we use symbols, the above algebric formula is

$$n = \frac{\Delta q}{q} \times 100 \Big/ \frac{\Delta p}{p} \times 100$$

In the above equation, ' Δ ' (delta) means a change, 'q' means demand and 'p' stands for price.

Let us now take an example to explain the percentage method of measuring elasticity.

Suppose 5 Kilograms of tamotas are demanded at Rs. 10. If the price falls to Rs. 6, the amount demanded rises to 6 Kilograms. Elasticity of demand in this case as per the above formula will be

$$n = \frac{\frac{1}{5} \times 100}{\frac{4}{10} \times 100} = \frac{20}{40} = 0.5 < 1$$ (less elastic)

From the above solution, demand for tamotos is inelastic as elasticity of demand is less than one $(n < 1)$.

Now, let us considered, the price falls from Rs. 10 to Rs. 6. The demand for tomotos increased from 5 Kilograms to 10 Kilograms. Then the elasticity of demand is

$$n = \frac{\frac{5}{5} \times 100}{\frac{4}{10} \times 100} = \frac{100}{40} = 2.5 = < 1$$

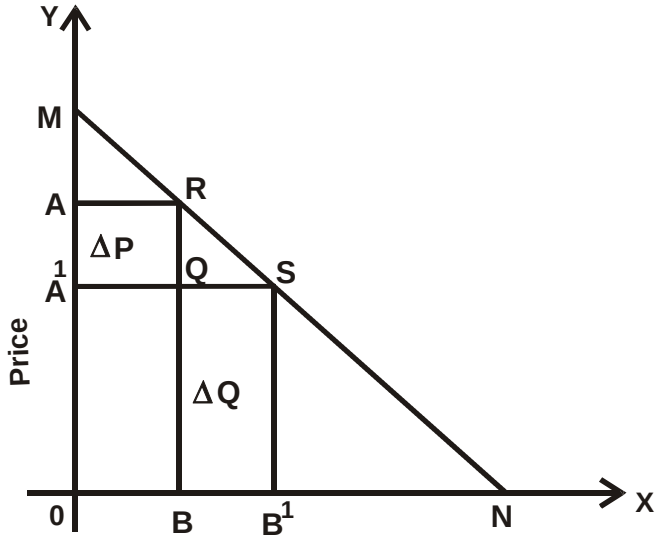
The elasticity value 2.5 is greater than one. Hence, this is relatively elastic demand. Let us now hope that the price falls from Rs. 10 to Rs. 6., the demand for tamotos is increased from 5 Kilograms to 7 Kilograms. Now the elasticity value is

$$\eta = \frac{\frac{2}{5} \times 100}{\frac{4}{10} \times 100} = \frac{40}{40} = 1$$

Hence, this is described as unitary elastic demand.

7.5.3 THE POINT METHOD: Marshall derived the point method for measuring elasticity at a point on the demand curve. This is also called geometrical method. In this method, we take a straight line demand curve which tangents X and Y axis, to measure elasticity of demand. This is explained with the half of above formula as here under.

Diagram 5.6



In the above diagram 5.6, we take quantity demanded on OX axis and price OY axis. MN is demanded curve. This is extended upto X and Y axis. Demand for the commodity is OB at OA price level. If the price falls to OA' causes to increase in demand to OB.

$$\text{Elasticity of demand}(\eta) = \frac{\text{Proportionate change in demand}}{\text{Proportionate change in Price}}$$

$$= \frac{\dfrac{\text{Change in demand}}{\text{Previous demand}}}{\dfrac{\text{Change in price}}{\text{previousprice}}}$$

$$= \frac{BB'}{OB} \Big/ \frac{AA'}{OA} \text{ or } \frac{BB'}{OB} \Big/ \frac{OA}{AA'}$$

From the above diagram, we can write the above as $BB' = QS,\ AA' = RQ,\ OA = RB,$ and $OB = AR.$ Thus, the above equation becomes

$$\eta = \frac{QS}{OB} \times \frac{RB}{RQ}$$

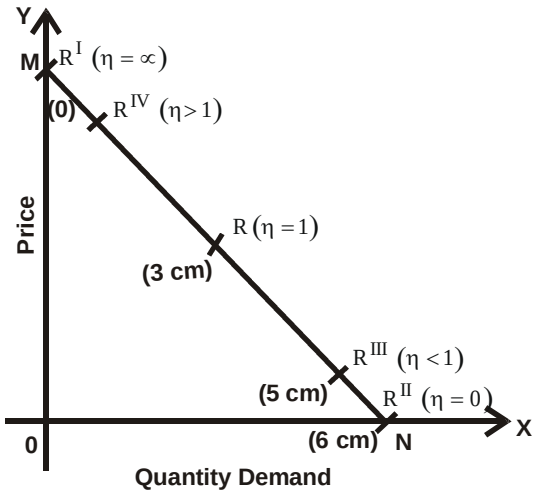
As $\underline{|RQS}, \underline{|RBN}$ are similar, the ratios of their sides is also equal. Hence, $QS = BN,\ RQ = RB$. Now, the above equation becomes as under

$\frac{BN}{\cancel{RB}} \cdot \frac{\cancel{RB}}{OB} = \frac{BN}{OB}$ is equal to the ratios of RN, RM.

Hence, $\eta = \frac{RN}{RM} = \frac{\text{Lower segment}}{\text{Upper segment}}$

It is equal to measuring the elasticity at any point along a demand curve with the help of the point mehtod. Suppose that the straight line demand curve is 6 centimeters.

Diagram 5.7



In the above diagram 5.7, point "R" b in the middle of the demand curve along with other points R^I, R^{II}, R^{III} and R^{IV}. So, elasticity of demand at these points are

$R = \frac{RN}{RM} = \frac{3cm}{3cm} = 1$ (Unity elasticity)

$R^I = \frac{R^I N}{R^I M} = \frac{6}{0} = \infty$ (Perfectly elastic)

$R^{II} = \frac{R^{II} N}{R^{II} M} = \frac{0}{6} = 0$ (Perectly inelastic)

$R^{III} = \frac{R^{III} N}{R^{III} M} = \frac{1}{5} = < 1$ (Relatively inelastic)

$R^{IV} = \frac{R^{IV} N}{R^{IV} M} = \frac{5}{1} = > 1$ (Relatively elastic)

Basing on the lower segment and upper segments, we may measure this elasticity at various points on the demand curve.

5.5.4 TOTAL EXPENDITURE METHOD: There is another method to measuring elasticity of demand, which known as total expenditure method. A change in demand is a change in price that causes to increase in the total expenditure. By comparing the total expenditure of a buyer both before and after the change in price it can be known whether this demand for the good is elastic, similarly and inelastic demand for a good is elastic when the total expenditure increases, inelastic when then total expenditure falls and unitary when the total expenditure remains unchanged. With a fall or rise in the price of good. This is proved in the following table.

Table 5.1

Table Showing Change in Demand in Change Price

Price of Good (in Rs.) (1)	Quantity demanded (in units) (2)	Total expenditure (in Rs.) (3)=(1)x(2)	Elasticity of demand
10	500	5000	$\eta > 1$
8	700	5600	Elastic Demand
10	500	5000	$\eta = 1$
8	625	5000	Unitary elastic demand
10	500	5000	$\eta < 1$
8	600	4800	in elastic demand

We are enable to understand whether the demand is elastic or inelastic or unitary with this method. However, it is possible to understand the quality of elasitcity of demand.

5.5.5 ARC METHOD: The arc method is an another method to measuring elasticity of demand. The arc means that a part in a curve. The elasticity of demand between two points on a demand is called arc elasticity. This is found by the following equation.

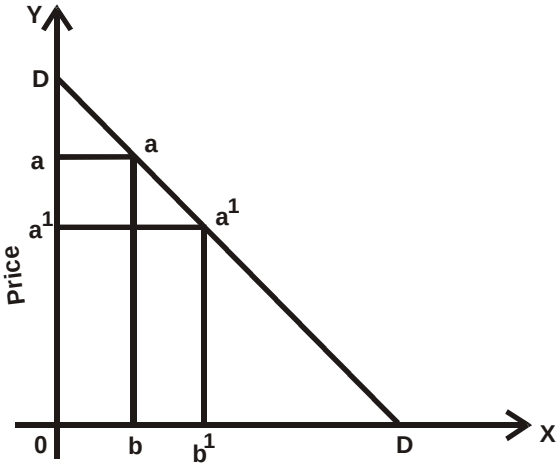
$$\text{Arc Elasticity of Demand} = \frac{\text{Change in demand}}{\text{Previous demand + Changed demand}} \div \frac{\text{Change in price}}{\text{Previous price + Changed Price}}$$

(or)

$$= \frac{\text{Changed in demand}}{\text{Previous demand + changed}} \times \frac{\text{Previous price + Changed price}}{\text{Change in price}}$$

With the help of the following diagram the arc method is analysed.

Diagram 5.8



In the above diagram 5.8, we measure quality demanded on OX axis and price on OY axis. DD in this demand curve. OA is the starting price and OB is the standing demand Oa_1 and Ob_1 are the low price and demands respectively. Now, basing an then above formula, elasticity of demand is

$$\text{Arc elasticity of demand} = \frac{bb'}{ob + ob'} \div \frac{aa'}{oa + oa'}$$

In other words, arc elasticity means average elasticity. Because, we took the previous demand and prices and changed demand and prices. The elasticity of demand in unitary when the value of elasticity is one. It is relatively elastic when the value is greater than one. It is relatively inelastic when the value is lessthan one.

5.6 INCOME ELASTICITY OF DEMAND:

Income is one of the main determinants of demand. There is a relationship between income and demand. It means that if the income rises, leads to increase in demand. If the income decreases, leads to decrease in demand. However, the income elasiticity of demand refers change in the decreased of a commodity in responsed to change in increase of a consumer. This is explained with the help of the following formula.

$$\text{Income elasticity of demand} = \frac{\text{Proportiate change in demand for commodity}}{\text{Proportionate change in the income of consumer}}$$

$$= \frac{\text{Change in demand}}{\text{Previous demand}} \Big/ \frac{\text{Change in income}}{\text{previous income}}$$

The income elasticity of demand is unitary when the value of income elasticity of of demand is equal to one. It is relatively elastic when the value of income elasticity of demand is greater than one. It is relatively inelastic when the value is infinite. It is perfectly inelastic when the value is zero.

5.7 CROSS ELASTICITY OF DEMAND:

Demand for a commodity depends upon not its price but also prices of its substitutes and complementary goods. The Gross Elasticity of demand is a measure of relative change in the quality demand for a commodity due to a change in the prices of its substitutes and complementary goods. The cross elasticity of demand of Y for X is found as in this following whenever.

$$\text{Cross elasticity of demand} = \frac{\text{Proportionate change in the demand for good X}}{\text{Proportionate change in the price of good Y}}$$

There is direct relationship between price of Y and demand for X when X and Y are substitues. It means that the price of good Y increases which leads to increase in the demand for good X. If the price of good Y falls, that leads to decrease in demand for good X.

There is inverse relationship between price of Y and demand for X when there are complements. It means that the price of Y increases that leads to decrease in demand for X and vice-versa.

The demand is unitary elastic when the value of cross elasticity of demand is equal to one. It is relatively elastic when the value is greater then one. It is relatively inelastic when the value is less than one. It is perfectly elastic when the value is infinite. It is perfectly inelastic when the value is zero.

5.8 DETERMINANTS OF ELASTICITY OF DEMAND:

The elasticity of demand of a commodity depends upon the following factors.

1. **NATURE OF THE COMMODITY:** We may said that the elasticity of demand for a commodity is based on nature of the commodity. Demand tends to be inelastic for necessaries of life. Demand tends to be elastic for luxiries. For instance, then elasticity of demand for salt is inelastic. The elasticity of demand for television is elastic.

2. **PROPORTION OF INCOME SPENT:** The elasticity of demand depends upon proportion of income spent of a consumer. If the proportion of one's income spend on a commodity is very small, demand for it does not change much for small changes in price. Demand in such cases tends to be in elastic.

3. **MULTI USES:** If a commodity can be put to several uses its demand tends to be elastic. Every fall in its price induces people to put it to less urgent uses. Demand will increase considerably for all in price. For example, electricity can be used for lighting purpose. Which its price is high. If the price will fall the electricity will be used for cooking purpose also.

4. **IF THE USE CAN BE POSTPONED:** If the use of a commodity can be postponed we shall buy it only when its price is sufficiently low. If its price rises we shall postpone buying it. this was be happen in the case of durable goods like cloths, cycles, fans etc. In such cases demand tends to be elastic. If the use of a commodity can not be postponed, its demand tends to be inelastic as it will buy even though its price is rises.

5. **TASTES AND HABITS:** If the consumer's tastes and habits are fixed, the demand for such goods to be in elastic. For example, if the price of broke bond coffee changes, its demand does not change as the consumer's tastes it.

6. **LEVEL OF PRICES:** The level of prices determine elasticity. If the price of a thing is high its demand will be elastic. If the price is low, its demand will be inelastic.

7. **USING TIME OF A COMMODITY:** Using time of a commodity determines the elasticity of demand. The elasticity of demand is greater in the long run than in the short run for the simple reason that the consumer has more time to make adjustments in his scheme of consumption.

8. **LIFE TIME OF GOODS:** The demand for superior goods is elastic and the demand for inferior goods is inelastic.

5.9 IMPORTANCE OF ELASTICITY OF DEMAND:

The concept of elasticity of demand has great practical importance in economics. It is required to take some economic decisions.

1. **PRICE DETERMINATION UNDER MONOPOLY:** A monopolist has to study the elasticity of demand for his product. He to get more profits with determining lower price for those goods have elasticity demand high price for those goods hence inelastic demand.

2. **PRICE DETERMINATION UNDER DISCRIMINATING MONOPOLY:** In discriminating monopoly, the monopolist will fix the price of this goods at different markets based on elasticity of demand. A monopolist will fix a higher price in the least elastic market are lower price in the higher elastic market.

3. **PRICING IN PUBLIC UTILITIES:** The concept is useful in public utilities, which are provided by state enterprises. The Governments will fix a higher price in the case of least elasticity of goods. For example, the electricity department is fixing higher price for the supply of electricity to households as its inelastic. Whereas the electricity department is fixing lower prices in the case of higher elasticity of good to industries as its elasticity.

4. **PRICE DETERMINATE A JOINT PRODUCTS:** The concept is useful in the price determination of joint products. It is not quite possible to estimate separate costs production of money joint markets like wool and mutton, paddy and hay etc. Hence, the prices of such goods are fixed basing on their elasticity of demand. A high price in fixed for that product for which demand is inelastic and low price is fixed for that product for which demand is elastic.

5. **WAGE FIXATION:** Wages of labourers are low, when the elasticity of demand of labourers is elastic in a firm as trade unions are unable to rise thier wages. If the demand for labour is inelastic, the employees can rise their wages.

6. **GOVERNMENT POLICIES:** Elasticity of demand is useful to governments to take some critical decisions in different sectors. Mainly, it is useful in the determination of supporting prices for agriculture products.

7. **INTERNATIONAL TRADE:** The concept of elasticity of demand is useful in international trade. It is useful in exports, imports, exchange rates etc.

5.10 SUMMARY:

Other things being equal, the law of demand states that a fall in price extends demand and a rise in price contrects demand for a good. However, the elasticity of demand shows that the ratio of percentage change in price. It's demand is elastic when the change in demand is greater than the change in a price, in elastic when it is less than and unitary when it is equal. These are five methods to measure the elasticity of demand. They are slope of the demand curve, point method, arc method, total expenditure method, and percentage method. It is useful in price determination under monopoly, taxation, international trade etc.

5.11 POINTS TO REMEMBER:

1. The elasticity of demand is classified as price elasticity of demand, elasticity of demand and crop elasticity of demand.

2. The price elasticity of demand is five types. They are perfectly elastic $(\eta = \infty)$, perfectly inelastic $(\eta = 0)$, relatively elastic $(\eta > 1)$, relatively inelastic $(\eta < 1)$ and unitary elastic $(\eta = 1)$.

3. Slope of the cure, percentage method, point method, arc method, and total expenditure method are the methods to measure elasticity of demand.

4. The elasticity of demand determines by natum of commodity, proportion of income spent, multi uses, use can be postponed, tastes and habits, and using time of commidity.

5. The elasticity of elasticity of demand has great practical importance is economics. It is useful in the price determination under monopoly, pricing in public utility, wage fixation, international trade etc.

5.12 KEY CONCEPTS:

1. **Elasticity of Demand** : A change in the demand for a commodity is response to a change in the price of it.

2. **Perfectly Elasticity of Demand** : If a change in price of a commodity causes an infintely large change in quality of demand is called perfectly elasticity of demand.

3. **Perfectly inelasticity of Demand** : When what ever the change in price, there is absolutely no change in demand is called perfectly inelastic demand.

4. **Relatively Elasticity of Demand** : When the change in demand is more than proportional change to the change in price is called relatively elasticity of demand.

5. **Relatively inelasticity of Demand** : When the change in demand is less than proportionate change to the change in price is called relatively inelastic demand.

6. **Unitary Elasticity of Demand** : When the change in demand is exactly proportionate change to the change in price is called unitary elasticity of demand.

7. **Arc Elasticity of Demand** : The elasticity of demand between two points on a demand curve is called arc elasticity of demand.

5.13 MODEL QUESTIONS FOR EXAMINATIONS:

I. ESSAY QUESTIONS:

1. Explain the different methods to measuring elasticity of demand.

II. SHORT QUESTIONS:

1. What is elasticity of demand? Explain different types of elasticity of demand.

III. VERY SHORT QUESTIONS:

1. Price Elasticity of Demand
2. Income Elasticity of Demand
3. Cross Elasticity of Demand
4. Percentage method
5. Point Method
6. Arc Method
7. Total Expenditure Method

5.14 SELECTED READINGS:

1. Stonier and Hange : A Text Book of Economic Theory
2. Sundaram, K.P.M. : Business Economics
3. Ahuja, H.L. : Principles of Micro-Economics
4. Dewett, K.K. : Advanced Economic Theory
5. Telugu Academy : Arthesastra Siddhanthalu

Lesson : 6

PRODUCTION

6.0 AIMS & OBJECTIVES:

In this part, we explain factors of production and various theories of production. By the end of this part you should understood the following topics.

* What is Production?
* Factors of Production and their characteristics
* Production Function
* Changes in proportion and changes in scale
* Law of Variable Proportions
* Law of Returns to Scale
* Internal and external economics

CONTENTS:

6.1 INTRODUCTION:

Generally, production means creation of a thing. But in economics, creation of utilities is called production. Modern economists say that production means tranformation of physical inputs into output. People buys some goods and services to satisfy their wants. Such goods have exchange value. Creation of these goods is called production. In simple terms, in economics, production means creation of form utility, time utility, moreover, services of doctors, teachers, lawers etc... are also called creation fo utilities.

6.2 FACTORS OF PRODUCTION:

Resources used for the production of a product is called factors of production or inputs. The factors of production are four types. They are:

1. Land
2. Labour
3. Capital and
4. Organisation

6.2.1 LAND: In orinary speach 'land' means soil. But in economics, the term 'land' is used in a much wider sense. Land includes all the free gifts of nature which yield income like agriculture, land mines, fisheries, buildings, rivers, forests, wells, etc... In the words of Marshall, land means "the materials, and the forces which nature gives freely for man's aid in land and water, in air light and heat".

CHARACTERISTICS OF LAND: In contrast to the other factors of production land presents certain well-marked pecularities.

1. Land is nature's gift and land is fixed in quantity.
2. Land in permanent. Hence, it is indestrutible.
3. It is nalure's gift to man hence we can not increase or decrese the area of land.
4. Land lacks mobility. Hence, we can not shift the land from one place to another.
5. No two pieces of land are exactly alike rither in fertility or situation. Some lands are made fertile and some lands are less fertile.
6. Since land is free gift of nature, it has no cost of production.
7. The law of variable proportions will apply.

IMPORTANCE OF LAND:

1. Economic development of a country depends upon its quality of land. A country with develop with more fertile land.
2. The development of basic industries like, agriculture, mines, forestry, etc.. depends upon the quality of land.

3. Development of roads and communications based on the upper layer of land. Construction of roads in forest areas and railway trucks is expensive which compared with other places.

6.2.2 LABOUR: Any work, whether manual or mental, which is under taken for a monetary consideration is called 'labour' in economics. In marginally words "Any exection of mind or body undergone partly or wholly with a view to some good other than the pleasure derived directly from the work, is called 'labour'.

PECULATIONS OF LABOUR:

1. Labour is perishable. If a day is lost it is last for even. So, labourers cannot postpone the sale of their labour.
2. Labourer has a very weak barganining power when compared with the organiser.
3. Labour participates actively as means of production then other factors, like land and capital.
4. Labour is inseparable from labourer. This is special the character of labour.
5. Labour has lack of mobility. Differences in customs, language, climate, race etc. Prevent the free mobility of labour between different places. Adam Smith has therefore observed that of all sorts of language man is the most difficult to be transported.
6. Supply of labour is inelastic as it is not increased or decreased to response to a fall or rise in wages.

IMPORTANCE OF LABOUR: Labour has very important in production of goods. It is not possible to use natural resources without labour. Moreover, a country can be achieved higher growth rate with skilled labour even the country has not sufficient natural reasons. Karl Mark has therefore observed labour was the only factor of production. Hence, labour plays a wider role in the modern production process.

6.2.3 CAPITAL: Plant and machinery, tools and accessories, stocks of raw materials, goods in process and fuel etc., which are used in production process, is 'capital'. Capital is known as produced means of production. According to Marshall, land means that all those goods which are not nature's a gift, and gets income wealth. However, wealth does not always mean capital but capital does always wealth.

CHARACTERISTICS OF CAPITAL: Capital has the following the characteristics even it is produced means of production.

1. Generally people saves their income. These savings creates capital. Hence, capital is produced means of production.
2. It assists labour in production of wealth.
3. It must not be used in producing goods along with other factors.
4. It has more mobility than other factors of production.
5. It has elasticity of supply. It means that it is possible to increase or decrease capital.

IMPORTANCE OF CAPITAL: Capital plays a vital role in the modern productive systems. Production without capital is hard for us even to imagine. Capital supplies the raw materials for manufacturing goods. Capital occupies a century position in the process of economic development. In fact, capital formation is the very core of economic development.

6.2.4 ORGANISATION: The fourth factor of production is organisation or enterprise which is supplied organiser or entrepreneur. The factors of production are owned by different persons. And they lie in different places. There must be a person to bring these factors together, combine them, organise production and undertake the risks and uncertainity of production. The person who performs all these functions is known as 'organiser' or 'entrepreneur'. He decides what to produce, where to produce and how to produce. He pays wage for labours rent for land and interesst on capital.

FUNCTIONS OF THE ORGANISER: The following are the functions of an organiser:

1. The entrepreneur must decide what his firm shall produce, how much shall be produced, what methods of production shall be used and where his firm shall be located.
2. He brings all the factors together and combines then in right proportion.
3. He gathers capital.
4. He gathers techonology.
5. He fixes price for his product and sell them in markets.
6. He introduces innovations in production process.
7. He is an uncertainity bearer.

Basing on the above discussion, the organiser plays a vital role in production activities. The productivity of a country depends upon its organisers. Thus, he may considered as captain of this firm or industry.

CAPITAL FORMATION: Capital formation means the increase in the stock of real capital in a country. In other words capital formation involves making of more capital goods such as machinery tools, factories, buildings etc., increase in the total capital is called total capital formation. But there is depreciation in machinery etc. in every year. Thus, substect the depreciation from the total capital formation then we get net capital formation. The capital formation is determined by tax policy, interest rates etc.

Capital formation takes place in three stages. They are : Creation of savings, mobilisation of savings and investment of savings in real capital. Creation of savings depends upon income of the people in country. Mobilisation of savings depends upon banking sector and investment of savings depends upon organisers in the country.

6.3 PRODUCTION FUNCTION:

The functional relationship between physical inputs and physical outputs is called production function. The production function analyse production capacity of a firm or industry or economy basing on technological position. This is analysed by the following material equation.

P = f(L, K, N, T)

where P = Production of goods

L = Labour

K = Capital

N = Land

T = Technology

From the above, the production function shows production depends upon land, labour, capital and organisation. It is also refers change in factors of production causes to change in production.

6.3.1 CHANGE IN PROPORTION AND CHANGE IN SCALE: In the production function, the quantity of a factor is increased by equal amounts, the quantity of other factors remaining fixed, is called change in proportion. It means change in proportion is in short-run. Based as the change in proportion the law of variable proportions was framed. The quality of all factors of production is increased by equal amounts is called change in scale. The law of variable proportions was framed. The quality of all factors of production is increased by equal amounts is called change in scale. The law of returns to scale was framed based on the change in scale.

6.4 LAW OF VARIABLE PROPORTIONS:

Quantity of production of a firm depends upon its factors of production, land, labour, and organisation. If the firm will hope to increase its production, it must be change the quantities of factors of production. Let us hope that the firm decides to increase are factor by equal amounts, the factors of production remaining fixed. The increased factors is called variable factors of production and fixed factors are called fixed factors of production.

The law of variable exhibits the relationship between variable factors of production and output. When other factors of production is fixed, the quality of any factor is changed by equal amounts resulting increments of the production will increase, but after a point, at a diminishing rate. The law of variable proportions is also known as the law of diminishing returns. The law was developed by both classical and neo-classical economists. According to stigler, "As equal increments of are input are added, the inputs of other propduction services being held constant, beyond a certain point, the resulting increments of product will diminish". Let us now understand the main concepts that are used in the law of variable proportions.

TOTAL PRODUCT:

The total product of different factors of production is the total output obtains from its use or the total product of 'N' units of a factor is the total output from its use. A change in a factor of production leads to change in the total production while other factors of production remains unchanged.

AVERAGE PRODUCT:

It will obtained by dividing total product each time with the number of factors employed.

$$\text{Average Product} = \frac{\text{Total product}}{\text{No. of units of variable factors}} = \frac{TP}{Q}$$

MARGINAL PRODUCT:

It is the addition made to the total product when one more unit of variable factor is unemployed, keeping other factors constant. This is obtained by the following formula.

$$\text{Marginal Product} = \frac{\text{change in total product}}{\text{change in units of variable factor}} = \frac{\Delta TP}{\Delta Q}$$

THE LAW OF VARIABLE PROPORTIONS:

The law of variable proportions is based on the following assumptions.

1. Only one input is variable while others are held constant. Labour is considered as variable factor and other factors, land, capital, are considered as fixed factors.
2. There is a posibility to increase or decrease the factors of production.
3. All the units of variable factor are homogeneous.
4. There is no change in technical knowledge.
5. The perfect market competition exists.

THE LAW OF VARIABLE PROPORTIONS - EXPLENATION:

According to the law of variable proportions, marginal, average and total production increase at first when a change in factor of production while other factors of production are constant. This is called the first stage. But, after the stage, the total product is increasing with decreasing rate while average and marginal products decrease. The marginal product decrease upto it becomes zero. This is the second stage. After the stage, if we will continue the production process, the marginal product will become negative. This is the third stage. The law of variable proportion is analysed in the following table.

Table 6.1

No. of Labourers	Total Product in units	Average Product in units	Marginal Product in units	
1	20	20	20	Ist Stage
2	48	24	28	
3	57	19	9	IInd Stage
4	64	16	7	
5	70	14	6	
6	72	12	2	
7	72	10.2	0	
8	70	8.7	-2	IIIrd Stage

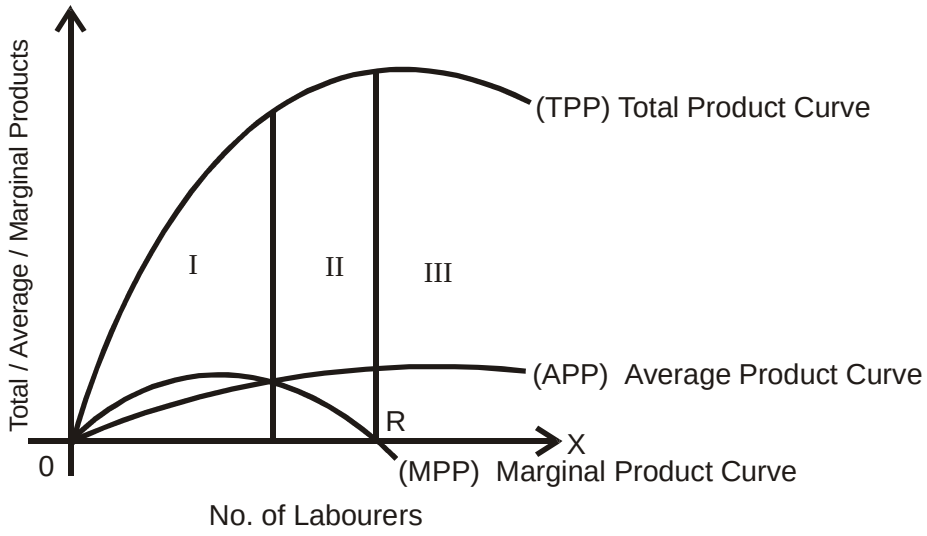
In the above Table 6.1, labour is variable factor while land, capital and organisation are fixed factors. From the above table, the total, average, and marginal products are equal at 20 units if the firm employs an labour. The total, average and marginal productivity are increasing with increase in number of labour. i.e., from one to two. Hence, this the first stage upto the two labourers.

The total output is increasing with decreasing are when the number of employment of laborus increased when to 3 to 6. In this stage the average and marginal products are decreasing.

At the sixth worker the total output is not changed and marginal product becomes zero. The portion from 3 to 7th labour is called the second stage. The employment of the 8th labourer causes a decrease in to the production from 72 to 70 and the marginal product becomes negative. This is called the second stage.

The above analysis is presented diagramatically in the following diagram - 6.1.

Diagram - 6.1



In the above diagram, the total product curve is increasing with increasing rate in the first stage. The marginal and average product curves are also intercept. This point is called as "Point of Inflaction". In the second stage, the total production is increasing with diminishing rate, and the marginal product curve cuts the X - axis, at point 'R'. The marginal product becomes zero while the total product reaches maximum point. In the third stage this marginal production curve is below X - axis due to diminishes in the total product.

The producer gets maximum product, where the marginal product is zero. Hence the production is in equilibrium at this point. An optimum product continues his production upto the end of second stage.

6.5 LAW OF RETURNS TO SCALE:

The law of variable proportions shows that the production function of a firm which exhibits the relationship between are variable factor of production and output which other factors of production are fixed. But the law is applicable only in the short-run. However, it is possible to

damage all the factors of production in the long-run. Change in all the factors of production is called change in scale. The law of returnes to scale shows that all the factors of production are changed to the same extent. So that whatever the scale of production, the proportion among the factors remains the same.

RETURNES TO SCALE:

The law of returns to scale refers that all the factors of production are decreased or increased to the same extent so that whatever the scale of production, the proportion among the factors remains the same.

The returns to scale is divided into three types. They are:

1. Increasing returns to scale
2. Constant returns to scale
3. Diminishing returns to scale

THE LAW OF RETURNS TO SCALE - ASSUMPTIONS:

The law of returns to scale is based on the following assumptions.

1. All the factors of production are variable.
2. Technological changes are absent and
3. Perfect competition market exists.

THE LAW OF RETURNS TO SCALE - EXPLANATION:

If all the factors of production are increased in a given proportion, the total output has to be increased in the same proportion or decreased or remains constant. Returns to scale increase because increase in total output is more than proportional to the increase in all inputs. Returns to scale became constant as increase in total output is an exact proportion to the increase in all inputs. Returns to scale diminish because the increase in output is less than proportionate to the increase in inputs. Different types of returns to scale is analysed in the following table - 6.2.

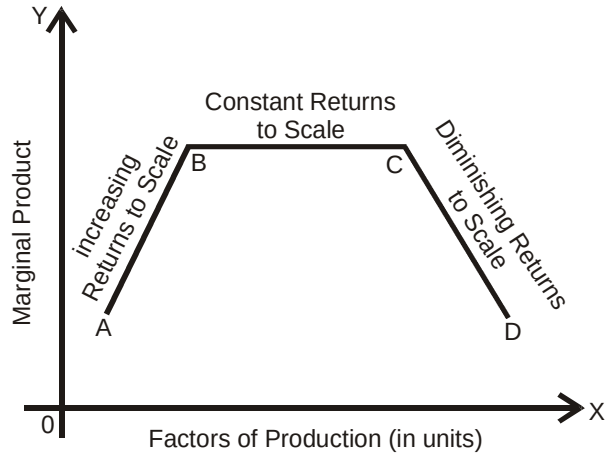
Table - 6.2
CHANGE IN SCALE AND CHANGE IN PRODUCTION

Combination of factors of production	Total Production	Marginal Product	
1	5	5	
2	12	7	Increasing returns
3	21	9	
4	38	9	Constant returns
5	39	9	
6	45	6	decreasing returns
7	49	4	

In the above table, combination of factors of production means combination of land, labour and capital. It may be observed from the above table, that the total production is increasing up to the combination of the 3 units of factors of production. It means that increase in the total output is more than increase in the total output is more than increase in the ratio of factors of production. Hence, it may be stated that it is increasing returns to scale. The marginal product of 3rd, 4th, and 5th units of factors of production is same. i.e., 9. It shows that change in the total production is equal to change in the factors of production. This is called constant returns to scale. In the case of 6th and 7th units of the total output increase at a labour rate than before so that the marginal product starts diminishing. Hence, this is called diminishing returns to scale.

The above analysis is shown in the following diagram - 6.2.

Diagram - 6.2



We take factors of production an X-axis and marginal product on Y - axis. Curve ABCD shows the returns to scale. It may be observed from the curve that the marginal product is increasing in between A and B points due to increase in units of factors of production. Hence, returns are increasing. The marginal product is constant in between points B and C. Hence, the returns are constant. The marginal product is decreasing in between points C and D. Hence, the returns are decreasing. Therefore, increasing returns is the first stage, constant returns is the second stage and decreasing returns is an third stage.

1. **INCREASING RETURNS TO SCALE:** The reasons for increasing returns to scale are : 1) Changes in size of the firm 2) destruction of indivisibility of factors of production and 3) Introduction of specialization in labour etc.

2. **CONSTANT RETURNS TO SCALE:** The reasons for constant returns to scale are: No more indivisibility of factors of production and fully introduction of specialisation in labour.

3. **DECREASING RETURNS TO SCALE:** The returns for decreasing returns to scale are utilisation of low quality of factors of production, pressure on resources etc.

6.6 INTERNAL AND EXTERNAL ECONOMIES:

In modern times, there is a need to increase production to meet our needs or then is a need to increase size of a firm. When economies that accure to a firm as a result of increase in its side is called internal economies. When economies that accure to a firm as a result of increase in its size of an industry is called external economies. Economies means uses of a firm as it participation in production process. These two economies will decrease cost of production. Which increase profits of the firm.

6.6.1 INERNAL ECONOMIES: Internal economies arise because of increase in the size of a particular firm. The following are advantages that accure to a firm as a result of increase in its size.

1. **LBAOUR ECONOMIES:** Division of labour can be introduced in a large firm. It leads to increase in production and minimise costs. There is possibility to appoint skilled labour in every production unit.

2. **TECHNICAL ECONOMIES:** These economies arise as a result the use of high machines and those scientific processes which can only be carried in big firms. It leads to increase in labour productivity. It may causes to research work in production. The firm may utilise by products. For example, molasis can be used to manufacture chemicals in sugar industries.

3. **MARKETING ECONOMIES:** A large firm derives economies in the purchase of materials and sale of goods. It can buy raw materials at lower prices because it effects bulk purchases. A large firm can maintain better selling organisation. It can spend huge sums of money on advertising and can establish new markets.

4. **MANAGERIAL ECONOMIES:** In a large firm the work of management is divided into several departments, each of which is put in charge of an expert. These experts can be used fully. It leads to improvement in skill and saving of time and promotes invention.

5. **FINANCIAL ECONOMIES:** The large firm derives many financial advantages. It is better known in market. It can borrow from banks and better terms. It can sell its shares debentures easily and quickly. The cost of obtaining credit or rising fresh capital is lower than for a small firm.

6.6.2 EXTERNAL ECONOMIES: Because of growth of the industry, the firms will derive some economies. These economies are called external economies. A firm derives same economies when same other firm grows larger, are called external economies. For example, as the number of textile mills increasing, more textile machinery is produced. This may reduce the cost of machines. Such advantages will accure to all the firms in the industry. This economies are called external economies. The external economies are divided into three types.

They are :

1. Economies of concentration
2. Economies of information
3. Economies of specialisation

1. **ECONOMIES OF CONCENTRATION:** When a number of firms are started in one area they derive natural advantages through the provision of transport facilities, training of skilled workmen, the stimulation of improvements, establishment of financial and commercial and so on. Subsidiary and auxileary industries will started based on these advantages.

2. **ECONOMIES OF INFORMATION:** When the number of firms in an increases collective action and co-operative effort become possible. Terms head not carry on indpeendent research. They can carry it collectively. Scientific and trade journals an published. Gatheting of information is easy and advantageous to the industry. There is possibility for exchange of ideas among the industries.

3. **ECONOMIES OF SPECIALISATION:** when the industry grows, the firms may agree to spit up the process of manufacture so that they can specialise each stage. The firms may divide between themselves the stages of production. For example, in the cotton textile industry, some firms specialise in spinning, same in weaving and so on.

6.7 SUMMARY:

Creation of utilities is called production. Factors of production, land, labour, capital and organisation are needed to produce goods. The functional relationship between inputs and output in production function. The quality of a factor, is increased by usual amounts, then quantity of other factors remaining fixed is called change in proportion. The law of variable proportion was based on the change in proportion. The quantity of all factors of production is increased by equal amounts is called change in scale. Based on the change in scale the law of returns to scale was framed. The returns to scale are in the three stages. They are, increasing constant and decreasing returns to scale. Economies of scale have been classified as internal and external economies. Internal economies can arise because of increase in the side of a firm. External economies can arise because of growth of indutry, the firm will derive these economies.

6.8 POINTS TO REMEMBER:

1. Creation of Utilities is called production.
2. Factors of Production are four types : They are 1) Land, 2) Labour, 3) Capital and 4) Organisation.
3. The functional relationship between inputs and outputs is called production functions.
4. The quality of a factor, is increaseed by equal amounts, the quantity of other factors is fixed is called change in proportion based on this, the law of variable proportion was framed.

5. The qualities of all factors of production were increased by equal amounts is called change in scale. Based on this the law of returns to scale was framed.
6. A firm or an industry accure internal and external economies if the production increases largely.

6.9 KEY CONCEPTS:

1.	**PRODUCTION**	**:**	Creation of utilities.
2.	**FACTORS OF PRODUCTION**	**:**	Resources that are used for the production of a good. According to Modern Economists land, labour, capital in organisation are the factors of production.
3.	**LAND**	**:**	All the free gifs of nature like water, land, air, etc. are called Land.
4.	**LABOUR**	**:**	Any work, whether manual or mental, which is under taken for a monetary consideration.
5.	**CAPITAL**	**:**	Plant and machinery, tools and accessories, stock of raw materials, fuel etc., which are used in production process are called capital.
6.	**ORGANISATION**	**:**	A person, who performs, brings all the factors together, combine them, organise them and taken risks and uncertenatics of production is called organiser.
7.	**PRODUCTION FUNCTION**	**:**	The functional relationship between inputs and outputs.
8.	**THE LAW OF VARIABLE PROPORTIONS**	**:**	When are factor is varied while keeping other factors fixed, the resulting behaviour of total, average, and marginal products is explained by the law.
9.	**THE LAW OF RETRURNS TO SCALE**	**:**	The total output has to change in the same proportion when the amounts of all the factors are changed in the same proportion is called the law of returns to scale.

10. INTERNAL ECONOMIES : Internal economies can arise because increase in production of a firm.

11. EXTERNAL ECONOMIES : A firm derives same economies because some other firm grown, are called external economics.

6.10 MODEL QUESTIONS FOR EXECRIMINATIONS:

I. EASY QUESTIONS:

1. What is production? Explain what are the factors of production and their characteristics.
2. Explain the law of variable proportions.

II. SHORT QUESTIONS:

1. Explain the law returns to scale.

III. VERY SHORT ANSWER QUESTIONS:

1. Production Function
2. Characterists of Land
3. Characteristics of Labour
4. Capital Formation
5. Functions of an Organiser
6. External Economies

6.11 SELECTED READINGS:

1. Alfred Marshall : Principles of Economies
2. Stomier and Hague : A Text Book of Economic Theory
3. G.E. Ferguson : Economics
4. M.L. Jhingan : Advanced Economic Theory
5. Telugu Academy : Vyapare Anthesastrem

Lesson : 7

ANALYSIS OF COSTS

7.0 AIMS & OBJECTIVES:

Costs and different concepts of costs are analysed in this part. You can understand the following things my the end of this solution.

* What is cost ?
* Types of costs
* Different concepts of costs
* Different cost curves and its nature.

CONTENTS:

7.1 INTRODUCTION:

Costs are very important in business economics. Producer determines price of his goods based on the cost of production. Moreover, the costs are useful in taking business divisions. Producer utilise various factors of production, land, labour, capital and organisation and pay remuneration to all factors in money terms. The remuneration or prices of factors which are paid by the producer in money terms, are called costs or cost of production. In other words costs means expenditure of goods and services.

7.2 TYPES AND CONCEPTS OF COSTS:

Costs are analysed in different types and concepts. Some of them are discussed here under.

7.2.1 EXPLICIT COSTS: Explicit costs are those expenses which are increased any this firm in business goods and services directly or in borrowing goods and services.

7.2.2 IMPLICIT COSTS: Implicit costs are the costs that can be attributed to factor units which are owned and supplied try the entrepreneur. For example, salary of the owner, etc.

7.2.3 MONEY COSTS: Money costs are the total money expenses incurred by a firm in producing a commodity. For example, wages of labourers, cost of raw materials, etc.

7.2.4 REAL COSTS: Efforts and scarifies undergone by the various numbers of the society in producing a commodity are the real costs. All the costs interms of efforts and scarifies but not money terms are considered real costs. However it is difficult to derive final real costs as it depends upon psychological factors. As these costs depends upon psychological factors, there is no importance to real costs in the price analysis.

7.2.5 OPPORTUNITY COST: The concept of opportunity cost was introduced by "Davenford". Since some resources are scare, they cannot be used to produce all things simultaneously. Therefore, if they are used to produce, one thing, they have to withdrawn from other uses. So, we must pay to that factor of production at least as much as it earns in alternative occupation. This is called opportunity cost. For example, a labour is working in a cotton industry at the wage rate of Rs. 1000 per month. He can get Rs. 1000, or more, if he employed in Jute industry. But the labour agree only if the Jute industries offers more salary than this first. Thus, the cost of the second is the alternative foregone.

7.3 ANALYSIS OF COST OF PRODUCTION OF A FIRM:

Cost of production of a firm is divided into two types. They are:

1. Fixed Costs and
2. Variable Costs

7.3.1 FIXED COSTS: The expenditure incurred on fixed factors of production is called fixed cost. Fixed costs remain the same whatever the level of output. They have to be incurred even where the firm stops production temporarily. Fixed costs includes wages and salaries of permanent staff, rent, interest, insurance, depreciation charges etc. Fixed costs are

distributed among all the factors of production. Hence, it is called over head costs. Quality of production does not depends on these costs directly. Hence, they are also called as supplementary costs.

Cost incurred on to that fixed factors of production to produce some quantity of goods is called total fixed cost (TFC). Average fixed cost is obtained by dividing the total fixed cost by number of goods produced. Technically,

$$\text{Average fixed cost (AFC)} = \frac{\text{Total fixed cost}}{\text{No.of goods}} = \frac{\text{TFC}}{\text{Q}}$$

7.3.2 VARIABLE COSTS: Variable costs vary with the output. These costs vary with the every change in output. They includes wages of equal and temporary workers, payments for raw materials, fuel, power, transport, etc.. These are also known as direct costs.

Costs which are incurred on all variable factors of production to produce some quantity of goods is called Total Variable Cost (TVC). Average variable cost is obtained by dividing the total variable cost by number of goods. Technically,

$$\text{Average variable cost (AVC)} = \frac{\text{Total variable cost}}{\text{number of goods}} = \frac{\text{TVC}}{\text{Q}}$$

7.3.3 TOTAL, AVERAGE AND MARGINAL COSTS: Fixed and Variable Costs are included in totals cost. Hence, the total cost is obtained by adding the total fixed cost and totals variable cost. In other words, total money cost that is incurred on all factors of production to produce goods is called total cost. For example, if a firm decides to produce soaps and amount incurred on buildings, land, raw material, machinery, wages of employers etc are called total costs.

Average cost in the last of each good. The average cost is obtained by dividing the total cost with number of units produced. Technically,

$$\text{Average Cost (AC)} = \frac{\text{Total Cost}}{\text{Number of Units}} = \frac{\text{TC}}{\text{Q}}$$

$$= \frac{\text{TVC} + \text{TFC}}{\text{Q}} = \frac{\text{TVC}}{\text{Q}} + \frac{\text{TFC}}{\text{Q}}$$

$$= \text{AVC} + \text{AFC}$$

Marginal cost is additional cost resulting from additional unit of production. The marginal cost includes variable costs only but not fixed costs. Because fixed cost may not vary whereas variable cost may vary in the short-run period. Hence, the marginal cost affected by variable costs. The following formula is helpful to understand this marginal cost.

$$\text{Marginal Cost (MC)} = \frac{\text{Change in total cost}}{\text{Change in number of goods}} = \frac{\Delta \text{ TC}}{\Delta \text{ Q}}$$

(or)

Marginal cost = Total cost of production of 'n' units - Total cost of production (n -1) units

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

7.4 COST OF PRODUCTION OF A FIRM IN SHORT-RUN:

The following table 7.1 shows various costs of a firm in the short-run period.

Production in units	Total fixed cost(TFC)	Total variable cost (TVC)	Total cost (TC)	Average fixed (AFC)	Average variable (AVC)	Average total (AC)	Marginal cost (MC)
0	100	-	100	100	-	-	-
1	100	30	130	100	30	130	30
2	100	48	148	50	24	74	18
3	100	62.5	162.5	33.3	20.8	54.1	14.5
4	100	76	176	25	19	44	13.5
5	100	90	190	20	18	39	14.0
6	100	109	209	16.7	18.1	34.8	19
7	100	150	250	14.3	21.4	35.7	41

It is observed from the above table that the total production is 7 units. It can be observed that the total fixed cost is remain the same even output increases. While the total variable cost is increasing. The average fixed cost is decreasing when the production increase. Average variable cost and average total costs are decreasing upto 5^{th} unit of production and then after increasing. Marginal cost decrease upto 4^{th} unit and later increasing. However, increase in marginal is greater than increase in total variable cost and average cost.

It may be observed from the above table that except total fixed cost all are increasing as it is caused by changes in the marginal cost. These costs are analysed in following diagrams.

7.5 SHORT-RUN COST CURVES:

The total cost curves are analysed in the diagram. 7.1(A). The total fixed cost curve is parallel to X – axis as the TFC remain fixed even the production increase or decrease. The total variable cost is zero if the firm is not produced any thing. The TVC curve is increasing with decreasing trend and later rising with increasing trend. Hence, the TVC cure starts from the origin. The total cost curve starts from Y – axis as shown in the diagram and rises with increasing rate and later on rises with increasing rate.

Average and marginal cost curves are shown in the diagram – 7.1(B). In the diagram, the average fixed cost curve AFC is decreasing with a result in output. Because the total fixed cost remain the same with a rise in output. Hence the AFC is distributed among various units of production. Therefore the AFC curve slopes downward to the right and is a rectangular hyperbola. The AVC curve is gradually decreasing, beyond a stage; it is increasing. Hence, the AVC will be 'U' shaped. The AC curve is also 'U' shaped. The AC curve is also 'U' shaped as AVC. But it is behind AVC. The marginal cost curve (MC) falls at first and then it slopes upward as further output additions to the output interfere with the most efficient use of the variable factors.

These are explained in the following diagrams.

Diagram 7.1 (A)

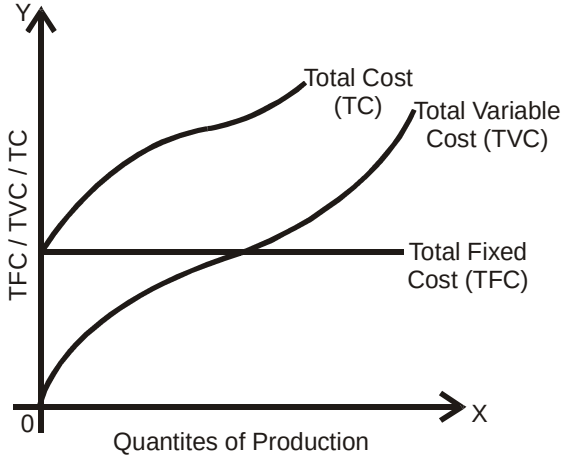
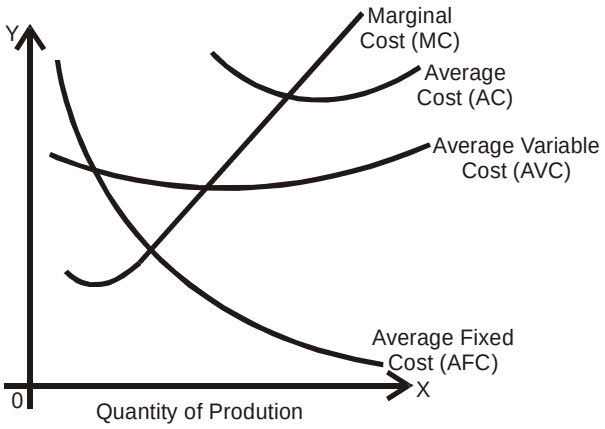


Diagram 7.1 (B)

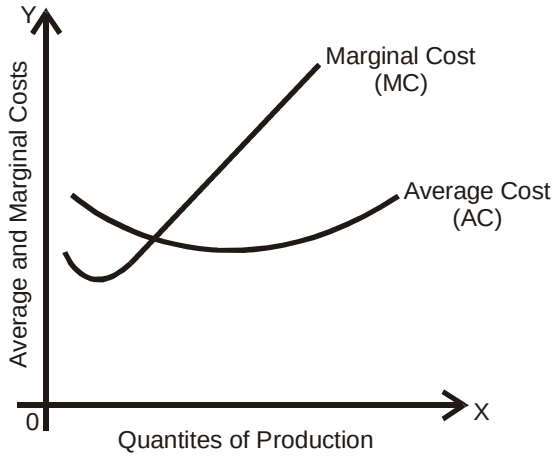


7.6 RELATIONSHIP BETWEEN MARGINAL COST AND AVERAGE COST:

Lippsey, an economist, analysed the relationship between average cost and marginal cost. The relationship between these two costs are analysed hereunder.

1. Average cost in greater than the marginal cost at first.
2. The marginal cost is decreasing while average cost declines.
3. The marginal cost is increasing while the average cost increases. But increasing rate in marginal cost is greater than increasing rate in the average cost.

Diagram 7.2



The relationship between average and marginal costs is analysed in the above diagram 7.2. In which depicts that, the average and marginal costs are decreasing at first. Later, while the marginal cost is increasing, the average cost declines and then increases. However increase in average cost, because of this reason, the marginal cost curve intersects the average cost curve from bottom.

7.7 LONG-RUN COST CURVES:

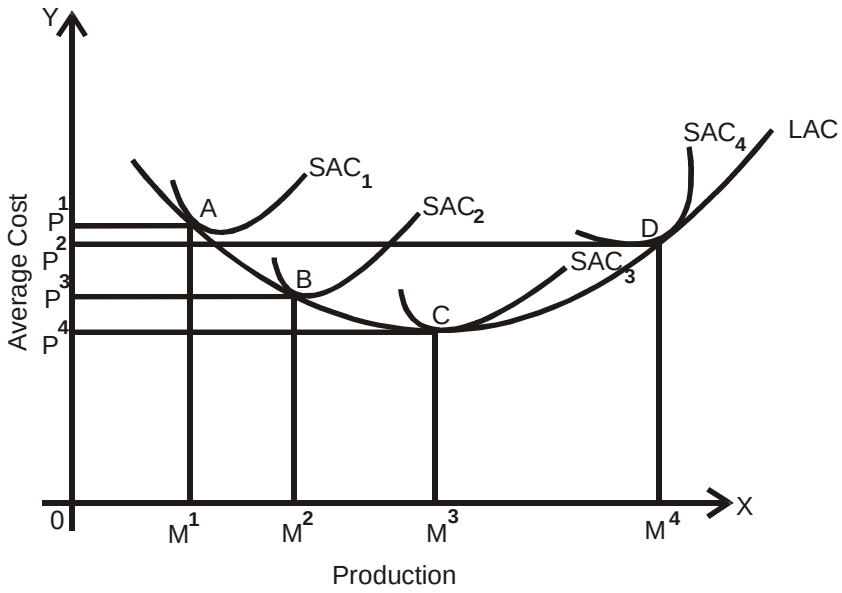
In short-run variable factors of production may varied. But in this long-run all the factors of production including fixed factors of production may be varied. Hence, all the factors of production are variable factors in this long run period. In the long-run we can construct new buildings, purchase new machinery, recruit additional employees etc.

Hence, all cost that are incurred in the long-run are called long-run cost curve. Long-run average cost is obtained by dividing the long-run total cost by quantity of goods. It is shown in the formula.

7.7.1 LONG-RUN AVERAGE COST CURVE: Any firm will try to increase its profits by increasing production and tries to minimise its costs of production. Fixed factors of production may varied if the firm decides to increase production in the long-run, along with variable factors of production. Hence, all the factors of production are variable in the long-run. Thus, all the costs are variable and there is no fixed costs. Hence, we draw long-run cost curves by adding all the short-run curves.

$$\text{Long} - \text{run Average Cost} = \frac{\text{Long run Total Cost}}{\text{Quantity of Goods}} = \frac{\text{LTC}}{\text{Q}}$$

Diagram - 7.3



SAC_1, SAC_2, SAC_3 and SAC_4 are the various short-run average curves in the above diagram-7.3. The long-run average curve (LAC) is drawn by adding the all short-run average curves. This is called 'envelop' curve. Points M^1, M^2, M^3 and M^4 shows various productions and points P^1, P^2, P^3 and P^4 shows its costs respectively on the LAC curve. The LAC curve is drawn by adding the minimum points P^1, P^2, P^3 and P^4 on various short-run average curves.

The firm is in equilibrium at OM^3 level of output with OP^3 level of cost of production as the firm has least-last.

7.8 SUMMARY:

The remuneration or prices of factors of production is called costs. Those costs are divided into several types. Explicit costs, implicit costs, opportunities costs, long-run costs, short-run costs, fixed costs and variable costs. Expenditure incurred as fixed factors of production is called fixed cost. Expenditure incurred on variable factors of production is called variable cost. Hence, fixed and variable costs are included in total cost. Average cost is obtained by total cost divided by number of goods. Additional cost for productivity additional product is called marginal cost. In the long-run all factors may be varied. Hence, all factors in the long-run are variable costs. Thus, all costs are variable costs.

7.9 POINTS TO REMEMBER:

1. Concept of cost play an important role in production process. Basing on the costs the business men take some decisions.
2. Total money expenses incurred by a firm in producing goods is called money cost. Efforts and sacrifices undergone by the various members of the policy are the real costs.
3. Total fixed cost may not be changed where as total cost and total variable cost may varied along with production.
4. Average cost curve and average variable cost curve are 'U' shaped. But average cost curve is beyond the average total cost curve.
5. The marginal cost curve Is Hockey bat shaped.
6. The long-run average curve is also known as 'envelop curve'.

7.10 KEY CONCEPTS:

1.	**Cost of Production**	**:**	Cost incurred by a firm in producing a commodity.
2.	**Money Cost**	**:**	Cost interms of money.
3.	**Real Cost**	**:**	Cost interms of efforts and sacrifices.
4.	**Total Cost**	**:**	Total cost incurred in producing same quantity of Output.
5.	**Variable Cost**	**:**	Cost may varied along with production.
6.	**Fixed Cost**	**:**	Cost may not changed along with production.
7.	**Short-run**	**:**	Short-run is a period in which all the factors cannot be varied.
8.	**Long-run**	**:**	Long-run is a period in which all the factors can be changed.
9.	**Average Cost**	**:**	Cost per unit of production.
10.	**Marginal Cost**	**:**	Additional cost for producing additional unit.

7.11 MODEL QUESTIONS FOR EXAMINATIONS:

I. Essay Questions

1. Discuss various concepts of costs.
2. Explain short-run cost curves.
3. Explain long-run cost curves.

II. Short Questions

1. Fixed and variable costs.
2. Money and reel costs
3. Short-run cost curves
4. Long-run cost curves.

7.12 SELECTED BOOKS FOR READING:

1. Watson D.S. : Price theory and its uses
2. K.K. Dewett : Modern Economic Theory
3. Ahuja, H.L. : Advanced Economic Theory
4. Jhingan, M.C., : Advanced Economic Theory
5. Telugu Academy : Vyapara Arthasasthram

Lesson : 8

SUPPLY

8.0 AIMS & OBJECTIVES:

Among the market forces the first one is demand and the second one is supply. The supply of a commodity at a given price is the amount of it offered for sale at a given time.

For example, 10 lakhs meters of cloth at a given price is the amount of it offered for sale at a given time is the supply of cloth. By the end of this lesson you should able to understand the following points:

* What is supply ?
* Law of supply, supply schedule, supple curve.
* Exceptions for the law of supply
* Elasticity of demand
* Types of Elasticity of demand
* Importance of Elasticity of Demand

CONTENTS:

8.1 INTRODUCTION:

Performance of Business organisation is determined by the demand bar and supply of its commodity. Generally, we consider production and supply as same. But in all times it is not correct. In production, some may utilised and remaining will be sent to the market. In this context production and supply are not equal. Supply is a flow. Hence, at a given price, at a given time, the amount of a commodity offered by producer for sale is called the supply.

8.2 ASSUMPTIONS:

The law of supply depends upon the following assumptions.

1) The number of firms are constant.

2) No change in technological progress.

3) No change in production and production of cost.

4) The prices of substitute goods are fixed.

5) Government policy is constant.

8.3 LAW OF SUPPLY:

Other things being equal, the supply of a commodity extends, with a rise in price and constracts with a fall in price". It means that the supply varies directly with the price. If the price of a commodity is high, producer produces more quantity and gets more profits producer produces less quantity when the price of the commodity is low to avoid laws.

8.4 SUPPLY FUNCTION:

We knew already that commodity extends with a rise in price and contracts with a fall in price. The functional relationship between price and supply is called supply function. There is a direct relationship between price and supply. But, not only the price of commodity but also some other factors, price of other goods, prices of factors of production, technological progress and other thing affecting the supply. Hence, the functional relationship between the supply and the factors is shown as under

$$S_X = f\left[P_X, T, P_Y, \cdots P_n, F_1, F_2, \cdots, F_n\right]$$

Where S_X = Supply of commodity X

P_X = Price of commodity X

T = Technological Progress

$P_y \cdots\cdots P_n$ = Prices of other goods

$F_1, F_2, \cdots\cdots F_n$ = Prices of factors of production.

Let us hope that, except the price of commodity X, other things being constant. Then the supply of commodity X depends upon its price. Now, we can write the above function as

$$S_X = f(P_x)$$

8.5 SUPPLY SCHEDULE:

Supply schedule shows the various amounts of a commodity offered for sale at different prices. Other things being equal, a rise in price tends to extend the supply. Given below is the supply scheduel of a commodity.

SUPPLY SCHEDULE

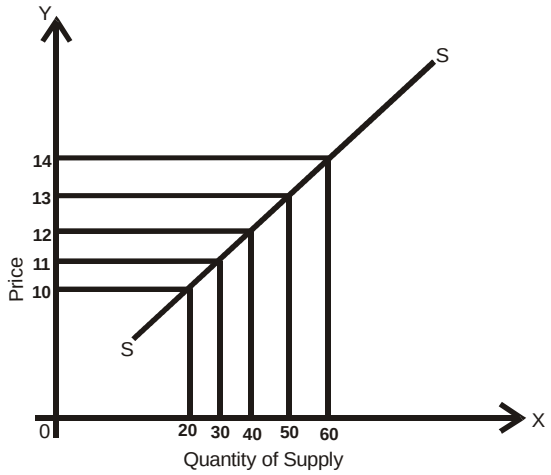
Price of Good (in Rs.)	Quantity (in quintals)
10	20
11	30
12	40
13	50
14	60

In the above table, the supply of commodity is 20 quintals when the price is Rs. 10. If the price arises from Rs. 10 to Rs. 11 tends to extend the supply from 20 quintals to 30 quintals and so on. It means arise in price tends to extend the supply. Hence, there is a direct relationship between the price and supply.

8.6 SUPPLY CURVE:

Supply curve shows the relationship between price and supply. This is shown in the following diagram 8.1.

Diagram 8.1



We took quantity of supply on OX - axis, and price on OY - axis in the above diagram. It is observed that the quantity of supply is 20 quintals at Rs. 10. If the price rises from Rs.10 to Rs. 11, the supply also increases from 20 to 30 quintals. A curve is drawn by intersecting each point, which is known as supply curve. It is SS in the diagram. The supply curve slopes upwards from left to right as shown in the above diagram.

8.7 EXCEPTIONS TO THE LAW OF SUPPLY:

There are certain exceptions to the law of supply.

1. Producer may anticipate further changes in prices suppose the price of a commodity has fallen. It is expected to fall further. Then, firms try to sell more when the price has initially fallen.
2. The law does not apply to labour. For example, the supply of labour may get reduced as wage rate rises beyond a point. The labour may be satisfied with a certain land of income. As he gets the desired land of income, a higher wage rate reduces the supply of labour. At that point the supply curve of labour bends backward.
3. The supply of agricultural output depends on weather conditions. Even when the prices, have gone up agricultural products may be in short-supply.
4. In the long-run the tastes and habits are more effective than prices.

8.8 ELASTICITY OF SUPPLY:

As elasticity of demand is very importance in business economics, elasticity of supply is also an important item in economics. The concept elasticity of supply, shows the relationship between changes in price and changes in supply. When the things being equal, the elasticity supply shows changes in supply as a result of changes in prices. The following equation is used for the calculation elasticity of supply.

Elasticity of supply $(n_s) = \frac{\text{proportionate change in supply}}{\text{proportionate change in price}}$

Proportionate change in supply $= \frac{\text{Change in supply}}{\text{First supply}} = \frac{\Delta Q}{Q}$

Proportionate change in Price $= \frac{\text{Change in price}}{\text{First price}} = \frac{\Delta P}{P}$

$$\therefore n_S = \frac{\Delta Q}{Q} \div \frac{\Delta P}{P}$$

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

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

8.9 TYPES OF ELASTICITY OF SUPPLY:

The elasticity of supply is five types. They are as under follows:

Different elasticity of supply curves:

Diagram 8.2(A)

Perfectly Inelasticity

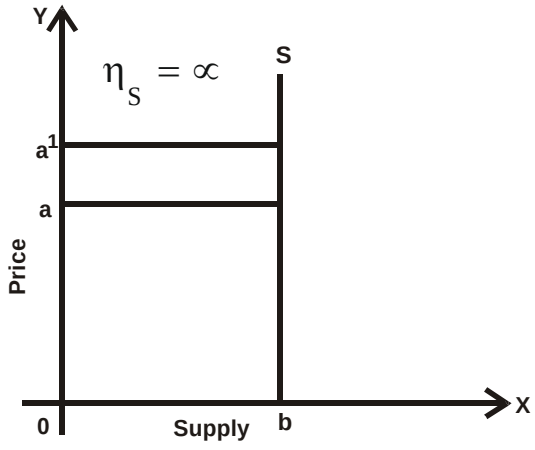


Diagram 8.2(B)

Perfectly Elasticity

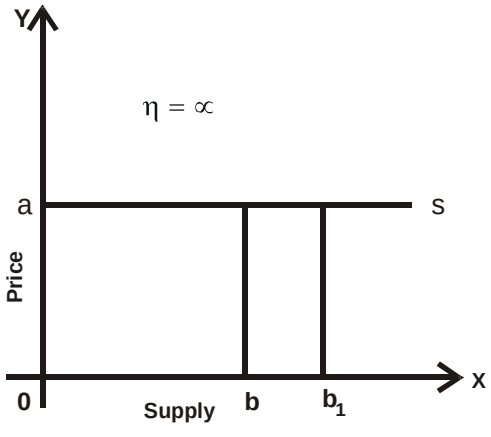


Diagram 8.2(C)

Uritery Elasticity

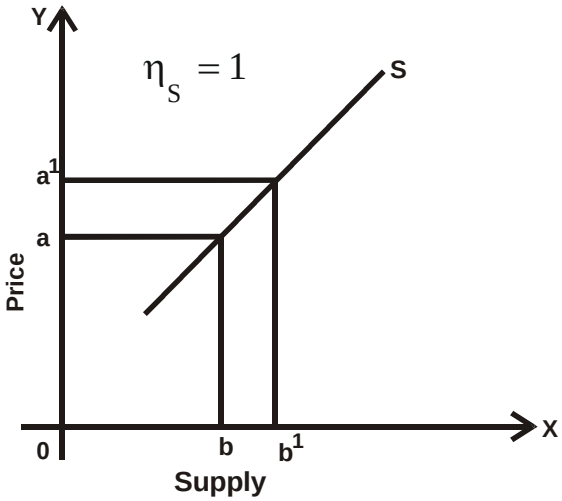


Diagram 8.2(D)

Relative Inelasticity

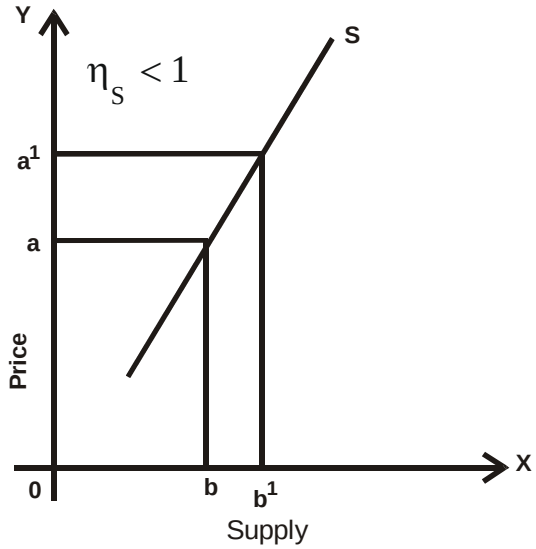
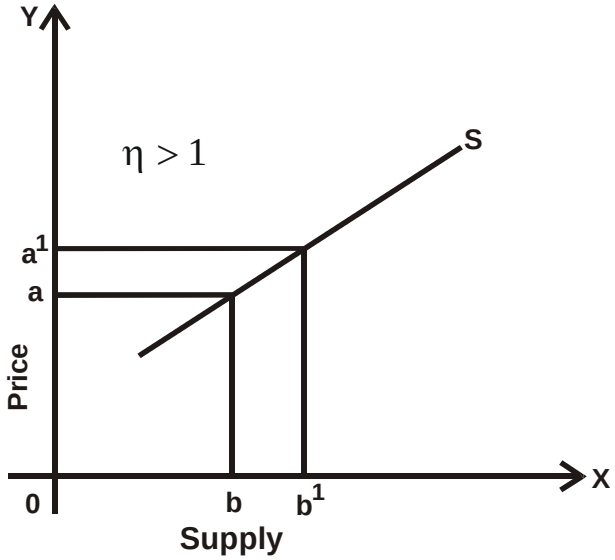


Diagram 8.2(E)

Relative Elasticity



1. **PERFECTLY INELASTICITY OF SUPPLY:** There is no change in supply for a change in price is called perfectly inelasticity of supply. The value of perfectly elasticity of supply is zero. The pefectly inelasticity of supply curve slopes vertical as shown in the diagram 8.2 (A). It is observed from the diagram that the supply of commodity is ob at oa price level. If the price increases from oa to oa', the supply does not change.

2. **PERFECTLY ELASTICITY OF SUPPLY:** There is a infinity change in suppply for no change in price is called perfectly elasticity of supply is infinitive (∞). The perfectly elasticity of supply curve is a horizontal straight line parallel to OX - axis as shown in the diagram - 8.2(B). It is observed from the diagram that the supply is increased from ob to ob' for no change in price.

3. **UNITARY ELASTICITY OF SUPPLY:** Unitary elasticity of supply is unity when the change in the amount supplied is an exact proportion to the change in the price. The value of unitary elasticity of supply is are $(\eta_s = 0)$. As shown in the diagram - 8.2(c), the curve SS is a 45^0 line represents unit elasticity of supply chnage in supply is bb' for a change in price aa'. Hence, change in supply is equal to change in price.

4. **RELATIVE INELASTICITY OF SUPPLY:** When a given change in price, leads to less proportionate change in the amount supplied is called relative inelasticity of supply. The value of realtive inelasticity of supply is less than one $(n_s < 1)$. As shown in the diagram - 8.2(D) aa' is the change in price and bb' is the change in supply. Hence, the change in supply bb' is less than for a change in price aa'. It is called relatively inelasticity of supply.

5. **RELATIVE ELASTICITY OF SUPPLY:** When a given change in price leads to greater proportional change in the amount supplied is called relative elasticity of supply. The value of relative elasticity of supply is greather than one. $(n_S > 1)$. As shown in the diagram - 8.2(E), aa' is the change in price and bb' is the change in supply. Hence the change in supply bb' is greather than for a change in price aa'.

8.10 DETERMINANTS OF ELASTICITY OF SUPPLY:

The following things are same of the determinants of elasticity supply.

1. Availability and mobility of factors of production affect elasticity of supply.
2. It depends as the length of time needed to re-organise production in order to adjust supply to demand.
3. Changes in process of production.
4. Availability of markets.
5. Changes in costs of production.

8.11 IMPORTANCE OF ELASTICITY OF SUPPLY:

The elasticity of supply plays great role in Business Economics. It is an important concept in economic activities as demand. The following analysis shows the importance of elasticity of supply.

1. Price determination of a commodity with regards to its demand, depends upon an elasticity of supply.
2. It is useful in impact of indirect taxes. It means we take into consideration while imposition of taxes.
3. The elasticity of supply is useful in determination of value theories.

8.12 SUMMARY:

The amount of a commodity offered by produces at a given price, at a given time, is called supply. According to the law of supply, other things being equal, the supply of a commodity extends with a rise in price and contracts with a fall in price. The supply schedule shows the various amounts of a commodity offered for sale at different prices. A curve, which shows the relationship between price and supply is called supply curve. Generally, the supply curve slopes upwards from left to right as there is direct relationship between the price and supply. Changes in supply as a result of changes in price is called elasticity of supply. No change in supply for a change in price is called perfectly inelasticity of supply. When the change in amount supplied is an exact proportion to the change in price is called unitary elasticity of supply. When a given change in price leads to greater proportionate change in the amount supplied is called relative elasticity of supply. The elasticity of supply plays an important role in economic activities.

8.13 POINTS TO REMEBER:

1. The amount of a commodity offered for sale by production at a given price and at a given time is called supply.
2. The functional relationship between price and supply is called supply function.
3. A schedule, which shows various amounts of a commodity offered for sale at different prices is called supply schedule. The curve is called supply curve.
4. The supply curve slopes upwards from left to right as there is direct relationship between price and supply.
5. Changes in supply as a result of changes in price is called elasticity of supply.
6. The elasticity of supply is perfect when the elasticity is infinitive (∞). It is perfectly inelastic when the elasticity is zero. The elasticity of supply is unitary when the elasticity is equal to one (= 1). It is relation elastic if the elasticity is greater than are (>1). It is relatively inelastic if the elasticity is less than one (<1).
7. Availability of factors of production, changes in production function, availability of markets, change sin cost of production etc. determines the elasticity of supply.
8. The elasticity of supply is useful in the analysis of indirect taxes insidence, value theory etc.

8.14 KEY CONCEPTS:

1.	**SUPPLY**	**:**	The amount of a commodity offered for sale by a producer at a given price and at a given time.
2.	**Law of Supply**	**:**	Other things being equal, the supply of a commodity extends with a rise in price and contracts with a fall in price.
3.	**Supply Schedule**	**:**	It shows the various amounts of a commodity offered for sale at different prices.
4.	**Supply Function**	**:**	The functional reltionship between price and supply of a commodity.
5.	**Elasticity of Supply**	**:**	Changes in supply as a result of changes in price is called elasticity of supply.
6.	**Perfectly inelasticity of supply**	**:**	No change in supply for a change in price is called perfectly inelasticity of supply.
7.	**Perfectly Elasticity of Supply**	**:**	Infinitive change in supply for a change in price is called perfectly elasticity of supply.
8.	**Unitary Elasticity of Supply**	**:**	When the change in amount supplied is an exact change in price is called unitary elasticity of supply.
9.	**Relative inelasticity of Supply**	**:**	A given change in price leads to less change in the amount supplied is called relative inelasticity of supply.
10.	**Relatives Elasticity of Supply**	**:**	A given change in price leads to more change in the amount supplied is called relative elasticity of supply.

8.15 MODEL QUESTIONS FOR EXAMINATIONS:

I. ESSAY QUESTIONS:

1. What is meant by elasticity of supply and explain different types of elasticity of supply.
2. What is elasticity of supply? Write the importance of elasticity of supply.

II. SHORT QUESTIONS:

1. Supply Schedule
2. Supply function
3. Elasticity of supply

4. Exceptions to the law of supply
5. Importance of elasticity of supply

8.16 SELECTED READINGS:

1. Dean Joel : Managerial Economics
2. Sundaram, K.P.M. : Business Economics
3. Dewett, K.K. : Advanced Economic Theory
4. Ahuja,H.C. : Principles of Micro Economics
5. Telugu Academy : Vyapara Arthasasthram

Lesson : 9

CLASSIFICATION OF MARKETS

9.0 AIMS AND OBJECTIVES:

The aim of this chapter is to study the classification of the markets and factors imfluencing the extent of market. We also generally observe the importance of time element in price determination and differences between market price normal price in this chapter.

CONTENTS:

9.1 INTRODUCTION:

In general sense market is a place where the sellers and buyers gathered in order to sell and abuy a particular commodity. But in Economics market is not relating to only a particular place. Selling and buying transactions may be taken place from dirtant places with the help of telephone. Postals etc... or Market is a situation where the buying and selling transactions are undertaken. The market for a chapman, "the term market refers not necessarily to a place but always to a commodity and the buyers and sellers who are in direct competition with one another". The markets must have a commodity. there must be the existance of buyers and sellers. More over there must be a competition among the buyers and sellers.

9.2 CLASSIFICATION OF THE MARKETS:

Markets can be classified in different ways:

1. **ON THE BASIS OF COMPETITION:** On the basis of comeptition, the markets can be classified into two - (a) Perfect Competition, (b) Imperfect Competition.

(a) PERFECT COMPETITION: Perfect competition is a market in which there are many firms selling identical products with no firm large enough relative to the entire market to be able to influence the market price. Therefore, a perfectly competitive market is said to exist, when there is a large number of producers producing the identical products. The prevailing price in known to all buyers and sellers.

FEATURES OF PERFECT COMPETITION: Perfect Competition is having the following features:

(i) In this competition there are large number of buyers and sellers.

(ii) In this market the good, produced by all the firms are homogeneous or identical.

(iii) In perfect competition every firm has the freedom to enter the market and exit from the market.

(iv) The buyers and sellers must have perfect information with requird to the prices of commodities at different supples and demand forces.

(v) There must be perfect mobility of factors of production.

(vi) The prices of the commodities are uniforce in perfect competition.

(vii) The transport costs should not be included in the cost of production.

(viii) There is a difference between firm and industry in perfect competition.

(b) IMPERFECT COMPETITION: The concept of imperfect competition was mainly propounded by Mrs. Joan Robinson. In this market the individual firms exercise their control over the price to a small extent or greater extent.

FEATURES OF IMPERFECT COMPETITION: The following are the main features of imperfect competition.

(i) There is imperfect mobility of the factors of production in imperfect competition.

(ii) Product differcutiation is another feature of imperfect competion.

(iii) There is no perfect information about market conditions.

(iv) Selling costs are playing much important role in imperfect competition.

(v) Generally in imperfect competition each firm is a price - maker and it can determine the price of its own brand of the product.

(vi) In imperfect competition the transport costs are included in price level.

KINDS OF IMPERFECT COMPETITION: Theare are different kinds of imperfect competition.

(i) Monopoly - In this market there is only one seller or firm.

(ii) Duopoly - Two sellers are there in this market.

(iii) Monopolimor Competition - There are large number of sellers but producing differential products.

(iv) Migopoly - There are only few sellers in this market.

2. **ON THE BASIS OF AREA:** On the basis of area, markets can be classified into local, national and international markets.

   (a) LOCAL MARKET: If a commodity is sold within a small or local area, then it is said to be a local market.

   (b) NATIONAL MARKET: In the case of national market the buying and selling transactions are under taken with in the country. The entire nation may be regarded here as one market.

   (c) INTERNATIONAL MARKET: When the commodities are sold all over the world, then it is said to be international market. The development air and sea transport leads to development of world market.

3. **ON THE BASIS OF TIME:** On the basis of time the markets can be classified into four

   (a) VERY SHORT PERIOD MARKET: Thisis also known as market period. In this market, time is very short for firms to increase the supply.

   (b) SHORT PERIOD MARKET: In this market production of goods can be changed to only some extent. The price which prevails in the short run market is called short run price.

   (c) LONG PERIOD MARKET: In this period the firms can install new capital equipment and new firms can enter the market. Supply of the goods can be changed to a great extent due to changes in the fixed cort and variable cost in this period.

   (d) VERY LONG PERIOD MARKET: There are tremendous changes in supply and demand in this very long period and it is difficult to identify those changes in this market. This period is also known as secular period.

9.3 FACTORS DETERMINING THE EXTENT OF MARKET:

The extent of market may be different in the case of different goods. A market may be a local, confined to a village, or it can cover a whole country or even the world. There are different factors which are determining the extent of market in the following way -

1. **SIZE OF PRODUCTION:** Large scale production leads to widening of the market. The commodities can have a wide market provided the product can fully meet the market demand. Markets have been expareded after the industrial revolution.

2. **NATURE OF DEMAND:** Generally the goods which have world wide demand will have wider market. For example gold has a world wide market. If the demand for the product is relating to only particular area, then there is a local market for that product.

3. **NATURE OF THE COMMODITY:** Durable goods are having wider market. For example, market for gold is wider because it is more durable good and its value is very high in proportion to its size.

4. **TRANSPORT AND COMMUNICATION:** The development of transport and communication facilities will increase the extent of market. In modern days air crafts and communication facilities are contributing a lot for expension of market.

5. **CURRENCY AND CRDIT SYSTEM:** A well developed currency and credit system will promote the extent of market. For example, after the establishment of Internation Monetary Fund, World Bank and other international institutions, world trade has been expanded.

6. **TRADE POLICIES OF THE GOVERNMENT:** Thisis the most important factor influencing the extent of market for a domestic product in foreign countries. If the government is imposing more restrictions on exports and imports, then the market will be narrow.

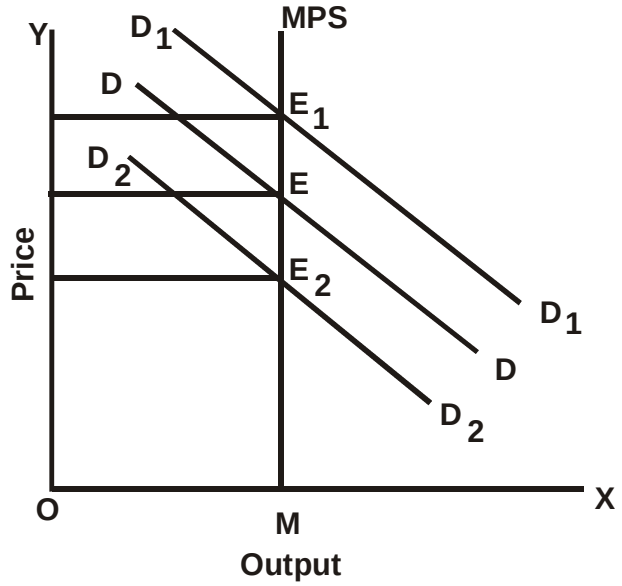
7. **PEACE AND SECURITY:** internation peace and security provide a better and favourable conditions for expansion of world market. At a tome of war, the extent of market will be limited.

8. **POSSIBILITY OF SAMPLING AND GRADING:** Availability of more samplying and grading facilities will increase the extent of market.

9.4 IMPORTANCE OF TIME ELEMENT IN PRICE DETERMINATION:

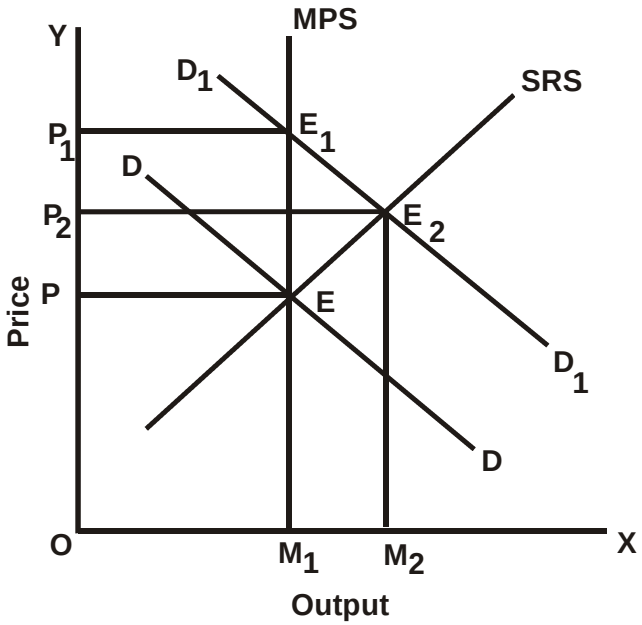
Generally the prices are determined with the help of demand and supply forces. But according to Marshall the time element is also playing an important role in price determination along with demaned and supply forces. Marshall broadly divided the time into four periods - 1. Very Short Period, 2. Short Period, 3. Long Period, 4. Very Long Period.

1. **VERY SHORT PERIOD:** Very short period is also known as market period. In this period supply in not changing in accordence with demand. The supply more or less remains constant due to no changes in both fixed cost and variable cost. Market period depends on the nature of commodities. the supply and demand curves are as follows in the very short period.



In the above diagram on X - axis the output and on Y - axis the price are determined. In this diagram MPS is the E and therefore, the price is determined as OP and output as OM. The market period supply curve i.e. MPS is constant. The demand curve is slufted from DD to D_1D_1. Therefore, the price is increased from OP to OP_1 and later decreased from OP to OP_2 with the decrease of demand from DD to D_2D_2.

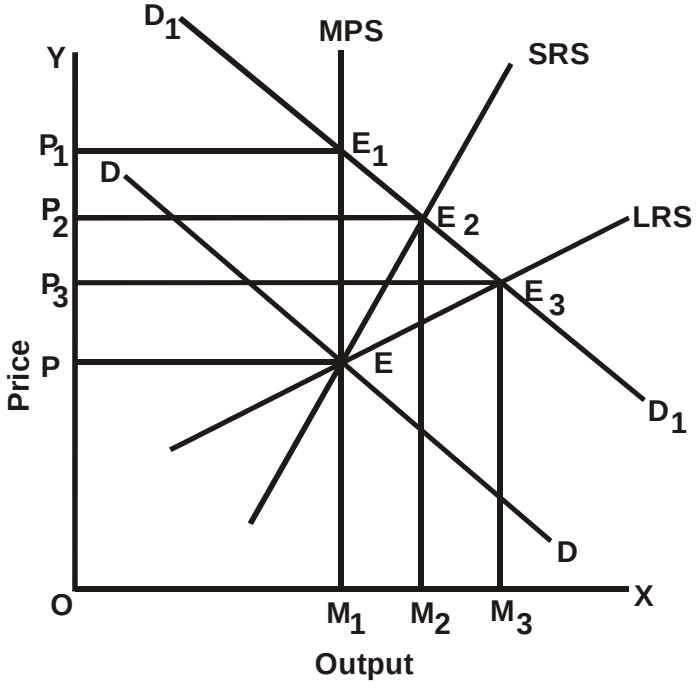
2. SHORT PERIOD: In this period due to change in the variable cost, the supply of goods can be adjusted to some extent. We can know this thing with the help of following diagram.



In the diagram SRS in the short run supply curce. The market period supply curve (MPS) and the increased demand curve (D_1D_1) are equal at point E_1. So the price is determined as OP_1. In the short period the supply curve is changed from MPS to SRS. Now the short run supply curve and increased demand curve D_1D_1 both are equal at point E_2. Therefore, the output is increased from OM_1 to OM_2 and the price is decreased from OP_1 to OP_2. Short period price (OP_2) is less than the price of very short period (OP_1) and the short period output (OM_2) is more than the output of very short period (OM_1).

3. LONG PERIOD: Long Period price is also known as normal price. In this long period both fixed cost and variable cost can be changed. therefore it is possible to increase the supply of goods to a great extent. We can arealyse the price determination in the long period in different cost situations.

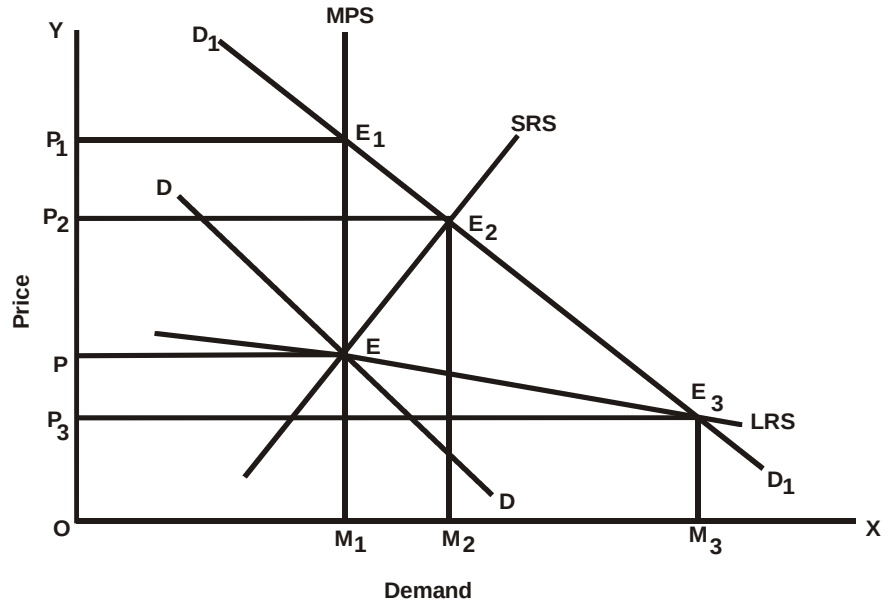
(a) LONG PERIOD PRICE AND INCREASING COSTS: When all the firms in the industry are experiencing diminishing returns to scale, then the additional output is secured only at the increasing costs. This can be explained in the following way with the help of diagram.



In the above diagram the long run supply curve LRS and the increased demand curve D_1D_1 are equal at point E_3. So the price is determined as OP_3 and the

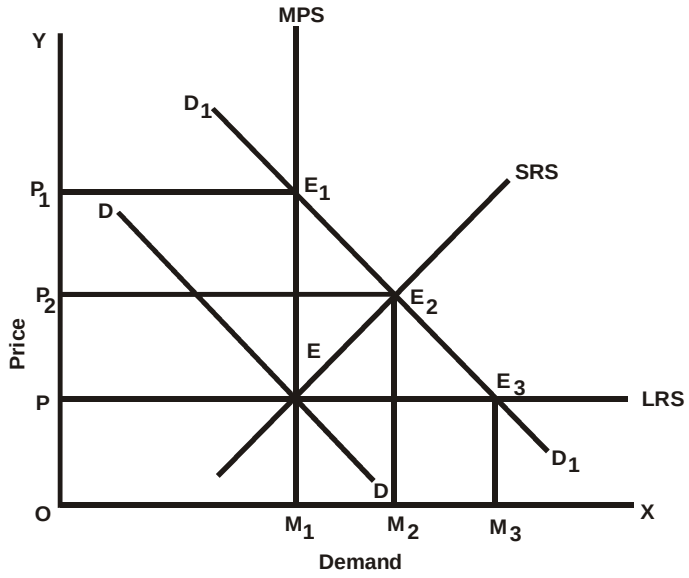
output as OM_3. The long period price (OP_3) is less than the short period price (OP_2) and the very short period price (OP_1). The long period output (OM_3) is more than the short period output (OM_2) and very short period output (OM_1).

(b) LONG PERIOD PRICE AND DIMINISHING COSTS: At the time of diminishing costs, the net external economics are so powerful and therefore, the normal price will be less than the original market price. This can be explained with the help of following diagram.



In the diagram OP is the original market price and OM_1 is the output. In the long period the price falls to OP_3. Since the industry is subject to increasing returns to scale, the net external economics cause te cost per unit to declive. As a result the long run normal price i.e. OP_3 is lower than even te original market price i.e. OP.

(c) LONG PERIOD PRICE AND CONSTANT COST: The industry which experiences constant retures to scale is called constant cost industry. The price determination under constant cost is explained in the following diagram.



In the diagram at OP original market price the quantity output is OM_1. In the long period the quantity of output is increased to OM_3 and the price falls from OP_2 to OP. Therefore, the long period normal price is equal to the original market price i.e. OP.

4. **VERY LONG PERIOD:** In very long period, the economic factors like size of population, supply of raw materials, general conditions of capital supply etc. have been changed very rapidly. The demand supply of the goods will be changed rapidly and frequently in this period. Therefore, it is not possible to determine the price and out. We can call this very long period as secular period.

9.5 MARKET PRICE AND NORMAL PRICE:

In the study of micro economics the concept of price is the playing an important role. The value of commodity expressed in terms of money is known as price. The concept of price can be analysed in two ways - 1. Market price, 2. Normal price. The differences between market price and normal price can be analysed in the following way.

1. Market price is relating to short run and normal price is relating to long run. Therefore, market price is a short run equilibrium price and normal price is a long run equilibrium price.

2. The demand plays an important role in determination of market price. Supply cannot be increased or decreased in a market period. Market price is increased with the increase of demand and decresed with the decrease of demand. Supply plays are important role in determination fo normal price. Some times the normal price falls even below the original previous price level due to increase of supply to a greater extent.

3. Market price may be less or more than the cost of production. Therefore, the market price is not influenced by cost of production on the other hand normal price always remains equal to the average cost of production. so, normal price is influenced by cost of production.
4. Market price is actually established andtherefore it is an actual price. But in actual life, the normal price does not exist. It is only an inaginary one.
5. Market price is a temporary price and it is determined by temporary equilibrium between the forces of demand and supply at a particylar time. Normal price is a permanent price and it is the result of long run equilibrium between demand and supply. Market price may change continuously from time to time. But te normal price is stable in the long period.
6. The producer may enjoy abnormal profits if the market price is more than the average cost. Some times he may bear losses if the market price is less than the average cost. But in the long period the producer always gets only normal profits. Normal price is always equal to the average cost of prodution and therefore the producer gets nromal profits in the long run.
7. All commodities are having market price. The goods which are reproducible are having normal price. There is no normal price in the case of non - reproducible goods. For example the diamonds are not reproducible goods and therefore, these goods are not having normal price.

9.6 CONCLUSION:

Market is a situation where the buying and selling transactions are under taken. On the basis of competition time and area, markets are classified into different ways. In economics, the classification of markets on the basis of competition in the most important one. There are some fundamental differences between market price and normal price.

9.7 Points to be remember:

1. In economics market is a situation where buying and selling transactions are under taken.
2. On the basis of competiotion, the markets are classified into perfect competition and imperfect competition.
3. On the basis of area, markets can be classified into local national and international market.
4. On the basis of time the markets are brodly classified into very short period market, short period market, long period market and very long period market.
5. There are various factors which are determining the extent of market.
6. According to Marshall the time element is also alaying an importnat role in price determination.

7. The concept of price is playing an importaant role in the study of micro economics. there are some differences between market price and normal price.

9.8 KEY CONCEPTS:

1. Market : In economics market is a situation where the buying and selling transactions are under taken.

2. Local Market : If a commodity is sold with in a small or local area, then it is said to be a local market.

3. National Market : In the case of national market, the buying and selling transactions are undertaken with in the country.

4. International Market : When the commodities are sold all over the world, then it is said to be international market.

5. Price : The value of commodity expressed in terms of money is known as price.

6. Fixed Cost : Fixed Cost is that cost which is not changed with the change of output and it rewains constant.

7. Variable Cost : Variabale cost is that cost which is changed wit the change of output. There is a direct relationship between output and variable cost.

9.9 MODEL QUESTIONS:

I. Essay Questions:

1. Write about the importance of time element in price determination.

II. Short Essay Questions:

1. What is market and explain the clasification of markets.
2. What are te factors influencing the extent of market.

III. Very Short Questions:

1. Classification of the markets on the basis of competition.
2. Classification of the markets on the basis of area.
3. Classification of the markets on the basis of time.

9.10 REFERENCE BOOKS:

1. R.A. Bilas : Micro Economic Theory
2. K.K. Dewet : Modern Economic Theory
3. H.C. Ahuja : Principle of Micro Economics
4. M.L. Jhingon : Micro Economic Theory
5. తెలుగు అకాడమి : అర్థశాస్త్ర సిద్ధాంతం
6. Centre for Distance Education : ఆర్థికశాస్త్రం సిద్ధాంతం

Lesson : 10

PERFECT COMPETITION

10.0 AIMS AND OBJECTIVES:

The main aim of this chapter is to study the featurer and price determination under perfect competition. We will also observe the equilibrium of the firm in the short run and long run under perfect competition. We also observe the equilibrium of te industry in perfect competition in this chapter.

CONTENTS:

10.1 INTRODUCTION:

The concept of market is playing an important role in study of economics. The determination of price of any commodity is mainly depending on the market. more over, the decisious with regard to production and purchase are also mainly depending on the nature of market. On the basis of competition the markets can be classified into two - 1. Perfect Competition, 2. Imperfect Competition.

DEFINITIONS: There are various definitions with regard to perfect competition.

According to Lift witch "Perfect competition is a market in which there are many firms selling identical products with no firm large enough relative to the entire market to be able to influence market price."

According to Bilas, "The perfect competition is characterised by the presence of many firms; they all sell identically the same product. the seller is a price - taker."

Mrs. Joan Robinson has defined perfect competition as "it prevails when the demand for the output of the each producer is perfectly elastic."

10.2 FEATURES OF PERFECT COMPETITION:

The following are te main features of perfect competition.

1. **LARGE NUMBER OF BUYERS AND SELLERS:** There are large number of buyers and sellers in perfect competition. the activity of one buyer or seller may not influence the market price. The output of single firm and purchase of a single buyer are very much less in the total output and purchases respectively.

2. **HOMOGENEOUS PRODUCTS:** In perfect competition the goods produced by different firms are homogeneous or identical. All te commodities are uniform in the aspects of quantity and quality. there is no product differentiation in this market. Therefore, the customers prefer all commodities equally.

3. **FREE ENTRY AND EXIT:** There is a free entry and exit of te firms in perfect competition. Every firm has the freedom to enter the market and exit from the market. If the firms are getting abnormal profits then the new firms may enter the market. If the firms are getting losses, then the firms have the freedom to leave the industry. So, in the long run under perfect competition all firms get only normal profits.

4. **PERFECT INFORMATION ABOUT MARKET CONDITIONS:** In perfect competition the buyers and sellers must have the perfect knowledge with regard to the prices of various commodities at different supply and demand forces. Therefore, it is possible to avoid price discrimination in this market.

5. **PERFECT MOBILITY OF FACTORS OF PRODUCTION:** There is a perfect mobility of factors of production with in the country. This situation leads to uniform cost of production in the whole economy. It implies that different factors of production are free to seek employment in any industry that they may like to do.

6. **UNIFORM PRICE LEVEL:** All commodities are uniform in perfect competition in the quantity and quality. Therefore, the prices of the commodities are also uniform.

7. **NO TRANSPORT COST:** In perfect competition in order to maintain uniform price level, the transport costs should not be included in the price level.

8. **DIFFERENCE BETWEEN FIRM AND INDUSTRY:** Under perfect competition there is a difference between firm and industry. Firm is a production unit and industry is a group of similar firms.

10.3 PRICE DETERMINATION:

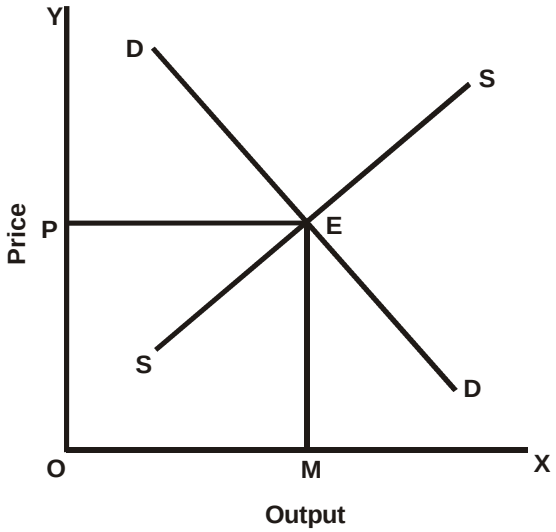
Generally prices are determined with the help of supply and demand forces. In perfect competition the price and output are determined at that point where the demand and supply both are equal. The following table explain the price determination under perfect competition.

Price (Rs.)	Demand	Supply
5	200	600
4	300	500
3	400	400
2	500	300
1	600	200

In the table above of the price of the commodity is Rs. 5 then there is a demand for 200 commodities and the supply is 600 commodities. If the price is reduced to one rupee, then the demand is increased to 600 commodities and the supply in decreased to 200 commodities. There is an inverse relationship between price and demand and there is a positive or direct relationship between price and supply. In the above table at Rs. 3 price level, there is demand for 400 commodities and the supply is also 400 commodities. Therefore, the price is determined as Rs. 3 in the above example.

DIAGRAMMATIC EXPLANATION:

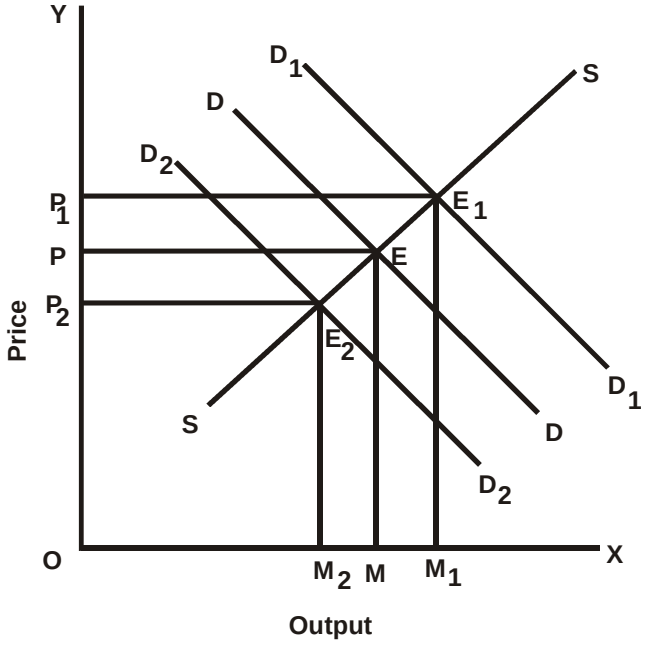
The price and output determination under perfect competition can be explained with the help of following diagram.



In the above diagram on X axis the output and on Y axis the price and determined. DD is the demand curve and it is falling down from left to right due to inverse relationship between price and demand. SS is the supply curve and it is increasing from left to right due direct relationship between price and supply. Both demand and supply curves are equal at point E. Therefore, the price is determined as OP and output as OM.

10.4 PRICE DETERMINATION WHEN DEMAND CHANGES AND SUPPLY REMAINS CONSTANT:

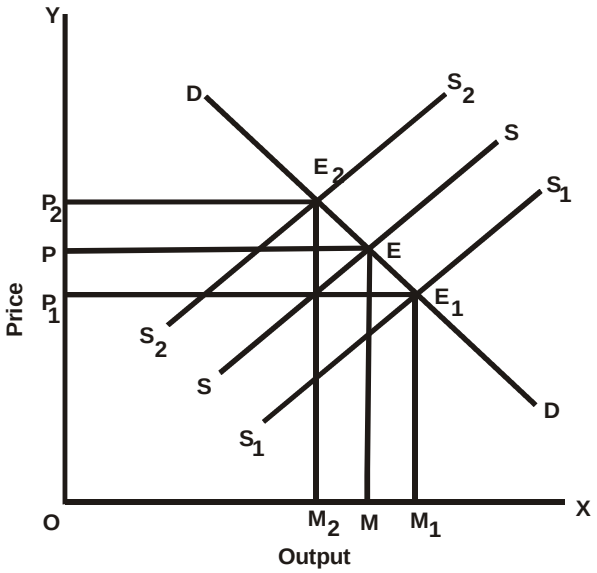
In perfect competition if supply being constant the equlibrium price rises when demand increases and when te demand decreses the price will fall down. This can be explained with the help of following diagram.



In the diagram the output is deremined on X axis and price is determined on Y axis. DD is the demand curve and SS is the supply curve. In this diagram we are finding the price determination when demand changes and supply remains constant. The demand is increased from DD to DD_1 and this increased demand curve and constant supply curve intersect each other at point E_1. Therefore, the equilibrium price is inreased from OP to OP_1 and later the output is increased from OM to OM_1. when the demand is decreased from DD to D_2D_2, then this decreased demand curve and constant supply curve both are equal at point E_2 and therefore, the price is decreased from OP to P_2 and output is decreased from OM to OM_2.

10.5 PRICE DETERMINATION WHEN DEMAND REMAINS CONSTANT AND SUPPLY CHANGES:

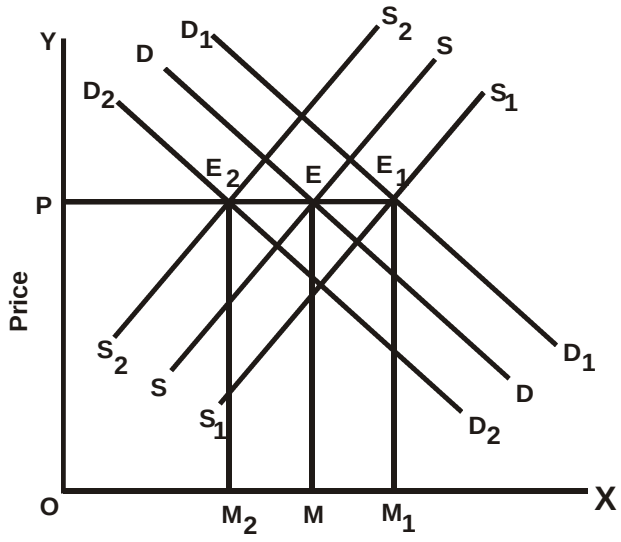
Under perfect competition if the demand being constant, the equilibrium price will rise when the supply decreases and when supply increases then the equilibrium price will fall. This can be explained with the help of following diagram.



In the diagram on X - axis the output and on Y axis the price are determined. DD is the demand curve and SS is the supply curve. When the supply is increased from SS to S_1S_1, then the constatn demand curve and the increased supply curve both are equal at point E_1. So the output is increased from OM to OM_1 and the price is decreased from OP to OP_1. when the supply is decreased from SS to S_2S_2, then the decreased supply curve and the constant demand curve both are equal at point E_2. Therefore, the output is decreased from OM to OM_2 and the price is increased from OP to OP_2.

10.6 PRICE DETERMINATION WHEN BOTH DEMAND AND SUPPLY ARE CHANGED:

In perfect competition when the demand and supply both are changed in the same direction and in the same rate, then the equilibrium price may not be changed. This can be explained with the help of following diagram.



In the diagram on the X - axis the output and on Y - axis the price are determined. DD is the demand curve and SS is the supply curve and both are equal at point E and therefore, the price is determined as OP and the output is determined as OM. Suppose the demand and supply both are increased from DD to D_1D_1 and from SS to S_1S_1 respectively. Now the increased demand and supply curves are equal at point E_1. At this point even though the output is increased from OM to OM_1 the price remains constant as OP. In the same way if the demand and supply both are decreased from DD to D_2D_2 and from SS to S_2S_2 respectively, then also the price remains constant as OP even though the output is decreased from OM to OM_2. Therefore, under perfect competition, there will be no change in price if demand and supply both are changed in the same direction and same rate.

10.7 EQUILIBRIUM OF THE FIRM AND INDUSTRY UNDER PERFECT COMPITION:

Market is a condition where buying and selling transactions are undertaken. On the basis of competition the markets are classified into perfect competition and imperfect competition. According to Liftwitch, perfect competition is a market in which there are many firms selling identical

products with no firm large enough relative to entire market to be able to influence the market price. According to Mrs. Joan Robinson perfect competition prevails when the demand for the output of the each producer is perfectly elastic.

In perfect competition there are large number of buyers and sellers. All the products are homogeneous in the quantity and quality. In this market there is free entry and exit of the firms and perfect availability of market information. There is a perfect mobility of factors of production. There is a uniform price and the transport costs are not included in the price level in perfect competition.

There is a difference between firm and industry under perfect competition. Firm is a production unit and where as industry is a group of firms. Equilibrium is a balancing position or resting point. A firm can get an equilibrium position where it has no desire to increse or decrease its output. A consumer is in equilibrium position where he gets maximum satisfaction with the help of his limited income. The producer gets an equilibrium position if he fets maximum production with the available resources. According to Bilas, "where profits are maximised we say the firm is in equilibrium."

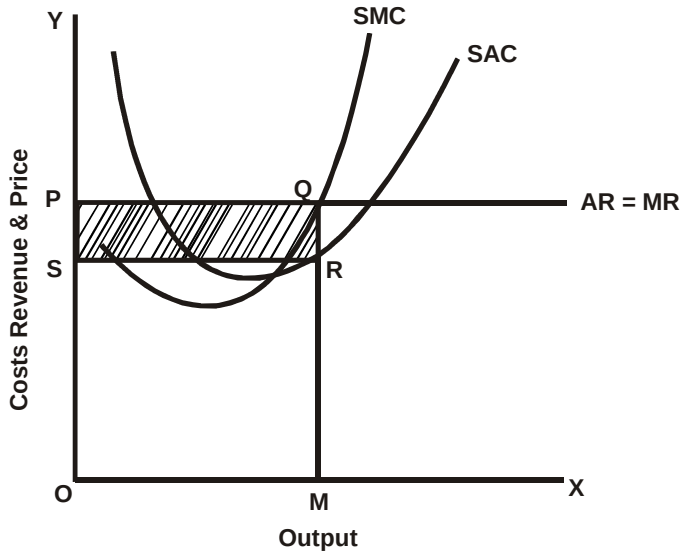
10.8 EQUILIBRIUM OF THE FIRM UNDER PERFECT COMPETITION:

The following conditions are necessary for attainment of equilibrium of the firm under perfect competition.

1. The firm must try to get maximum profits.
2. Marginal cost must become equal to marginal revenue and at that equilibrium point price and output are determined.
3. The marginal cost curve must cut the marginal revenue curve from below or from left side. At that equilibrium point the MC curve is at rising stage.

10.9 EQUILIBRIUM OF THE FIRM IN SHORT PERIOD WITH ABNORMAL PROFITS:

In perfect competition the firm can get abnormal profits or losses in the short period. The following diagram explains how the firm can get abnormal profits and reaches the equilibrium position in the short run.

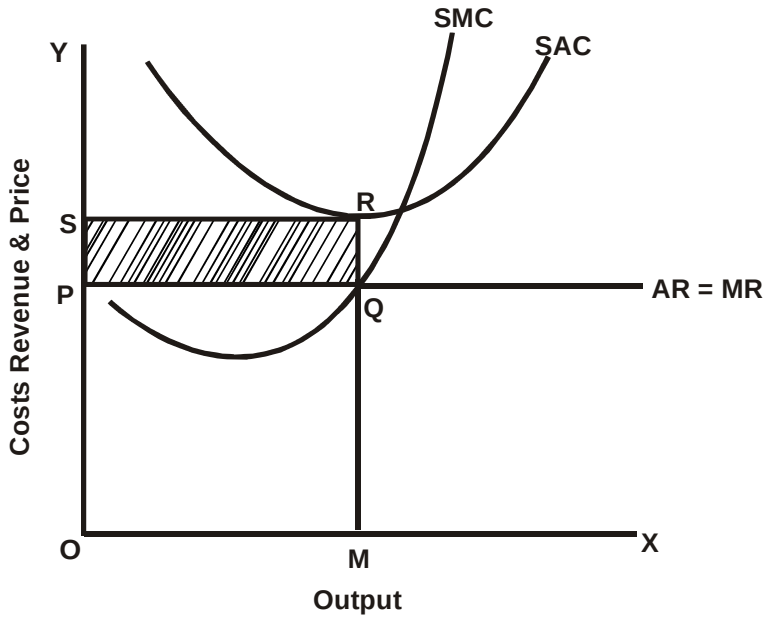


In the above diagram on X - axis the output and on Y - axis the cost, revenue and price are determined. In perfect competition the average revenue and marginal revenue curves are equal and therefore, AR and MR curves are equal and parallel to X axis due to uniform price level. In this diagram SMC curve is equal to MR curve at point Q. So, at that equilibrium point the output in determined as OM and the price as OP. Moreover at that equilibrium marginal cost curve is at rising stage. OPQM is the total revenue and OSRM is the total cost. IF we deduct the total cost from the total revenue, then we can get the total profits. Therefore -

OPQM - OSRM = PQRS = Profits.

10.10 EQUILIBRIUM OF THE FIRM IN SHORT PERIOD WITH LOSSES:

In perfect competition in the short run some firms may get losses. We can know this thing with the help of following diagram.

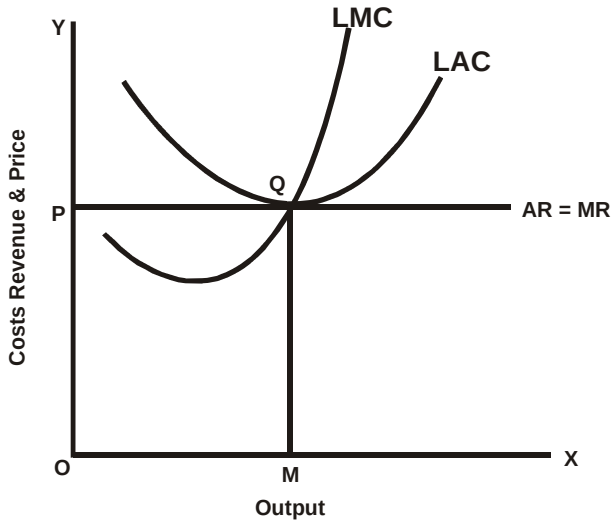


In the diagram on X - axis the output and on Y - axis the costs, revenue and price are determined. The marginal cost and marginal revenue are equal at point Q and therefore it is anequlibrium point. At this point average cost (SAC) is more than average revenue (AR). In the diagram OM is the OP is the price. OPQM is the total revenue and OSRM is the total cost. In this diagram total cost is more than total revenue and therefore, the firm is getting losses. In this diagram -

OSRM - OPQM = PQRS = Losses

10.11 EQULIBRIUM OF THE FIRM IN THE LONG RUN:

Under perfect competiton in the long run the firm does not get abnormal profits or losses because of free entry and exit of the firms. In the long run all firms get only normal profits. In this period both AC and AR become equal and therefore, thefirms get only normal profits. This can be explained with the help of following diagram.



In the diagram on X axis the output and on Y axis the costs, revenue and price are determined. Both marginal cost and marginal revenue are equal at point Q and it is an equilibrium point. At this equilibrium point average cost (LAC) and average revenue (AR) both are equal. OPQM is the total revenue and also total cost. Therefore, the firm is getting only normal profits in the long run. These normal profits are included in the cost of production.

10.12 Equilibrium of The Industry Under Perfect Competition:

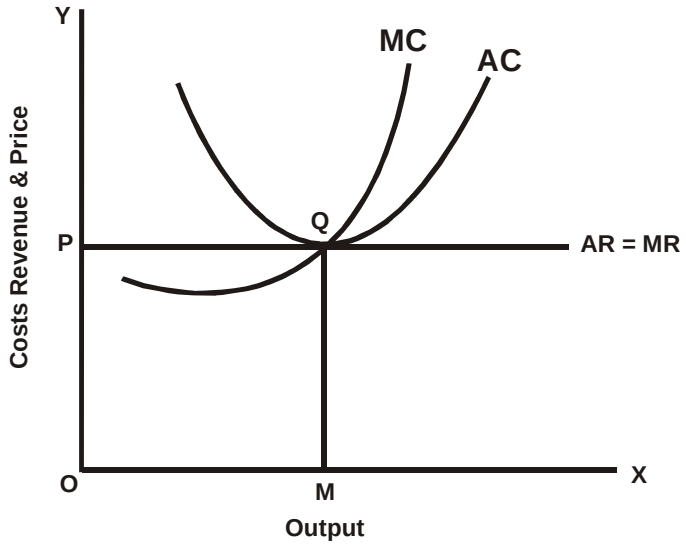
Industry is a group of firms producing similar products. In fact the concept of industry exists only under perfect competition. The industry is in equilibrium when it has no tendency to increse or decrease its level of output. Therefore, equilibrium of the industry means that forms are neither moving in or nor moving out.

In order to attain the equilibrium position of the industry under perfect competition the following conditions are observed -

1. All firms in the industry get only normal profits.
2. The industry gets an equilibrium position where the marginal cost is equal to marginal revenue.
3. In the case of industry at equilibrium point the marginal cost, average cost, marginal revenue and average revenue are equal.

DIAGRAMMATIC EXPLANATION:

Under perfect competition in the case of the firm in the short period there are some possibilities of getting abnormal profits or losses. But in the case of industry, there is no possibility of getting of abnormal profits or losses. The industry gets only normal profits. Thiscan be explained with the help of following diagram.



In the diagram on X axis the output and on Y axis the costs, revenue and price are determined. In this diagram the MC and MR are equal at point Q. At this point the MC, MR, AC and AR are equal. The output is determined as OM and theprice as OP. OPQM is the total revenue and also total cost. So, there are no abnormal profits or losses. The industry is getting only normal profits. These normal profits are included in the cost of production.

10.13 CONCLUSION:

In perfect competition the price, average revenue and marginal revenue are the same. There is a uniform price in perfect competition. Actiually the concept of perfect competition is only a myth. It is not a realirtic concept. the most important essential condition for equilibrium of the firm or industing under perfect competition is the marginal cost must become equal to marginal revenue.

10.10 POINTS TO BE REMEMBER:

1. There are various definitions with regard to perfect competition.
2. Perfect competition is having some features.
3. In perfect competition the price is determined at that point where demand and supply are equal.
4. Equilibrium is a resting point or balancing position.
5. Certain conditions are necessary for attainment of equilibrium of the firm under perfect competition.
6. In the short period under perfect competition some firms may get abnormal rofits and some firms may get losses also.
7. In the long run all firms get only normal profits.

8. For attainment of equilibrium of the industry certain conditions are observed.
9. All firms in the industry get only normal profits.

10.15 KEY CONCEPTS:

1. **Firm** : Firm is a production unit. Goods produced by a single unit of production unit is known as firm.
2. **Industry** : Industry is a group of similar firms. The group of firms which are producing similar products is known as industry.
3. **Equilibrium** : Equilibrium is a balancing position or resting point.
4. **Marginal Cost** : Marginal cost is the additional cost while is arised due to production of one more unit of output.
5. **Average Cost** : Average Cost is the unit cost. If we divide the total cost by the total quantity of output, then we get average cost.
6. **Marginal Revenue** : Marginal revenue is the additional revenue which we get because of selling of additional commodity.
7. **Average Revenue** : Average Revenue is the unit revenue. If we divide the total revenue by the total number of goods sold, then we can get average revenue.

10.16 MODEL QUESTIONS:

I. Essay Questions:

1. What is perfect competition and have the price is determined under it.
2. Explain the equilibrium of the firm and industry under perfect competition.

II. Short Essay Questions:

1. Write about the features of perfect competition.
2. Explaint he equilibrium of the firm under perfect competition.
3. Write about the equilibrium of the industry under perfect competition.

III. Very Short Questions:

1. Conditions for equilibrium ofthe firm under perfect competition.
2. Condition for equilibrium of the industry under perfect competition.
3. Features if perfect competition.

10.17 REFERENCE BOOKS:

1. R.A. Bilas : Micro Economic Theory
2. Stonier & Hague : A Text Book of Economic Theory
3. H.L. Ahuja : Principles of Micro Economics
4. M.L. Jhingan : Micro Economic Theory
5. తెలుగు అకాడమి : అర్థశాస్త్ర సిద్ధాంతం
6. Centre for Distance Education : ఆర్థికశాస్త్రం - సిద్ధాంతము

Lesson : 11

MONOPOLY AND DISCIMINATING MONOPOLY

11.0 AIMS AND OBJECTIVES:

The main aim of this chapter is to study the price and output determination under monopoly and disciminating monopoly. We also observe the main differences between perfect competition and monopoly market in this chapter.

CONTENTS:

11.1 INTRODUCTION:

The word monopoly has been derived from the conbination of two words like 'mono' and 'poly'. Mono means 'single' and 'poly' means 'seller'. Therefore, monopoly means single seller. It is the ordinary meaning of monopoly. In economics monopoly is said to be existed when a firm is the single seller or producer of a product where there are no close substitutes for it.

DEFINITIONS:

According to Ferguson, "a pure monopoly exists when there is only one producer in the market. There are no dire competitions."

According to Mc. Connel, "pure or absolute monopoly exists when a single firm is the sole producer of a product for which there are no lose substitutes."

11.2 FEATURES:

The following are the main features of monopoly market.

1. **SINGLE PRODUCER:** Under monopoly there is only one seller or producer. He controls the entire supply of the commodities. Monopoly may be an individual or firm or a partnership or a joint stock company or a state. There is no competition in monopoly market.
2. **NO CLOSE SUBSTITUTES:** In monopoly market there are no close substitute products. There are no other firms producting the similar or near commodities for the product of monopoly.
3. **NO FREE ENTRY:** The new firms have no freedom to enter the market in the monopoly. Therefore, the monopoly firm can get abnormal profits in the short run as well as in the long run.
4. **NO DIFFERENCE BETWEEN FIRM AND INDUSTRY:** In monopoly market there is no differernce between firm and industry. There is only one firm in this market and the other firms should not produce the similar products which are produced by the monopoly firm. Therefore, in monopoly market, the firm and industry both are same.
5. **REVENUE CURVES FALLDOWN FROM LEFT TO RIGHT:** The revenue curves are falling down from left to right in monopoly market. The monopolist can control only price or output. If the monopolist to sell more, he must reduce the price level and if he wants to fix more price, he must reduce the output.
6. **PRICE MAKER:** In monopoly market, the monopolist has complete control the supply of the commodity. Due to large number of buyers, demand of any one buyer constitute a small part of the total demand. Therefore, buyers have to pay the price fixed by the monopolist.

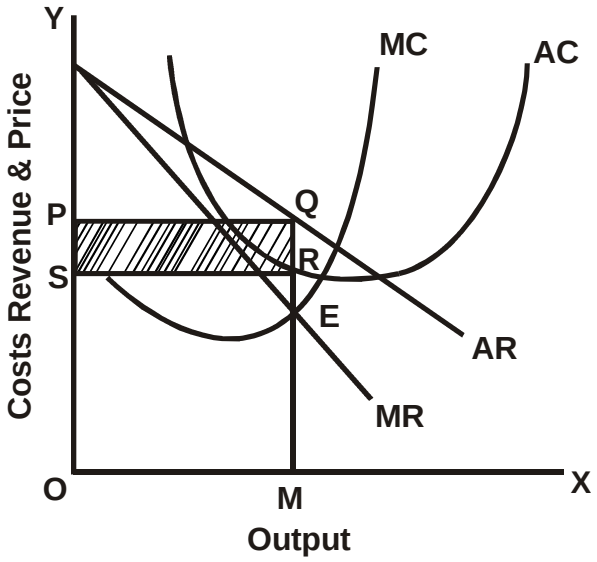
11.3 PRICE AND OUTPUT DETERMINATION UNDER MONOPOLY:

The following conditions are necessary for the price and output determination under monopoly market.

1. The aim of the monopolist in to get maximum profits. He must produce the goods to that extent where the marginal cost becomes equal to marginal revenue. AT that level he will get an equilibrium position and gets maximum profits.
2. The average revenue and marginal revenue curves fall down from left to right with the increase of output in monopoly market. If the monopolist wants to sell more output, he must reduce the price level and therefore, the revenue curves are falling down froim left to right with the increase of output.
3. In monopoly the average revenue is equal to price and therefore, the AR line isthe demand line.
4. Under monopoly market the MR falls more rapidly than the AR with the increase of the output.
5. In monopoly market, the monopolist fixes the output at that point where the marginal cost is equal to marginal revenue. On the basis of this, he will fix the price on the average revenue line and this is more than MR and AC. The difference between AR and AC is the amount of profit.

DIAGRAMMATIC EXPLANATION:

In monopoly market the output is determined at that point where MC and MR are equal and on the basis of this the price is determined on AR line. This can be explained with the help of following diagram.



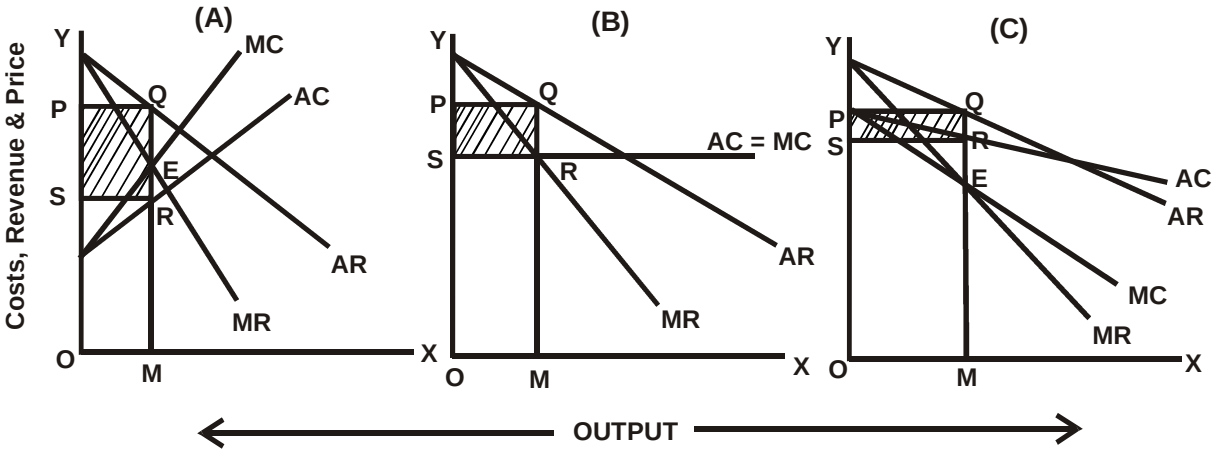
In t he above diagram on X - axis the output and on Y - axis the costs, revenue and price are determined. In this diagram AR is the average revenue, Mr is the marginal revenue, AC isthe average cost and MC is the marginal cost. In monopoly market where MC and MR are equal and at that point only the output is determined. On the basis of this equilibrium point the price is determined on AR line. In the above diagram the MC and MR are equal at point 'E'. Therefore, the output isdetermined as OM. On the basis of this the price is determined as OM on the basis of this the price is determined on AR line at point Q. Therefore, the price is OP or QM. The difference bwetween AR and AC is the amount of abnormal profit per one unit. Therefore, QR is the unit profit. IF we deduct the total cost from the total revenue, we can get the total amount of profit. Therefore -

OPQM - OSRM = PQRS = Profit

In the above manner to monopoly firm may get abnormal profits in the short run. In the short run the monopoly may get normal profits or losses. In the long run also the monopoly firm may get abnormal profits because of no free entry of new firms in the market.

11.4 PRICE DETERMINATION WHEN COSTS ARE INCREASING OR CONSTANT OR FALLING:

In price and output determination, there is a difference between perfect competition and monopoly. In perfect competition at equilibrium point the cost curves especially the marginal cost curve is at rising stage. But in monopoly market the cost curves may be increased or constant or decreased at equilibrium point. We can know these things with the help of following diagrams.



In the above diagrams on X axis the output and on Y axis the costs, revenue and price are determined. In diagram A the cost curves are increasing MC and MR are equal at point E and therefore, the output is determinedas OM and on the basis of this the price is determined on AR line at point Q. Therefore, OPQM is the total revenue and OSRM isthe total cost. So, PQRS is the total amount of profit.

In diagram (B) the marginal cost and marginal revenue (MC and MR) are equal at point R. OPQM isthe total revenue and OSRM is the total cost and therefore PQRS is the total amount of profit. In this diagram AC and MC are constant and therefore, they are parallel to X axis.

In the diagram C the cost curves ar e falling. Marginal cost (MC) and marginal rvenue (MR) are equal at point E and therefore it is equilibrium point. In this diagram OPQM is the total revenue and OSRM is the total cost and therefore PQRS is the total amount of profit.

11.5 MONOPOLY PRICE AND ELASTICITY OF DEMAND:

There is a relationship between monopoly price and elasticity of demand. The concept of elasticity of demand is more helpful to monopolist in price determination. The main motive of monopolist is to get maximum profits. In order to get maximum profits the monopolist fixes more price in the case of those goods in which the demand is te inelastic one and fixes less price in the case of elastic demand goods. If the monopolist is fixing the price on the basis of elasticity of demand, then only he will get maximum profits.

11.6 PRICE DISCRIMINATION UNDER MONOPOLY:

Price discrimination refers to the changing of different prices from different buyers by the monopolist for the same type of products. Therefore, the practice of selling the same commodities at different prices to different buyers is known as price discrimination. Under monopoly market only the price discrimintion is possible.

DEFINITIONS:

Mrs. Joan Robinson has defined the price discrimination as "the act of selling the same article produced under single control at different prices to different buyers."

Accordingto Stigler, " price discrimination refers to the sale of technically similar products at prices which are not proportional to their marginal cost."

11.7 KINDS OF PRICE DISCRIMINATION:

1. **PERSONAL DISCRIMINATION:** In this personal discrimination the monopolist changes different prices from different customers for the same type of product on the basis of ability to pay. For exmple a doctor may change more fee from a rich patient and less fee from a poor patient for the same services rendered.

2. **PLACE OR LOCAL DISCRIMINATION:** The monopolist changes different prices in different markets for the same product under plae discrimination. Duruping is the best example for place discrimination. According t o this the producer may sell the same commodity at one price at home market and at the other price in abroad. Place discrimination is also known as local discrimination or geographical discrimination.

3. **TRADE OR USE DISCRIMINATION:** In this trade discrimination the monopolist will change different prices for different types of uses of same commodity. For example, electricity will be sold at te lower price for agriculture purpose and at higher price for domestic purpose.

11.8 CONDITIONS FOR PRICE DISCRIMINATION:

The price discrimination is possible when the following conditions are prevailing.

1. **MORE THAN ONE MARKET:** There must be two or more than two seperate markets, otherwise theprice discrimination is not possible. For changing different prices from different persons, different markets must be existed.

2. **DIFFERENT ELASTICITES:** The elasticity of demand in each market must be different. It means if one market is less elastic then the other market must be more elastic. This condition isvery important condition for price discrimination. There will be no scope for price discrimination if the elasticity of demand is equal in all markets.

11.9 PRICE AND OUTPUT DETERMINATION UNDER DISCRIMINATING MONOPOLY:

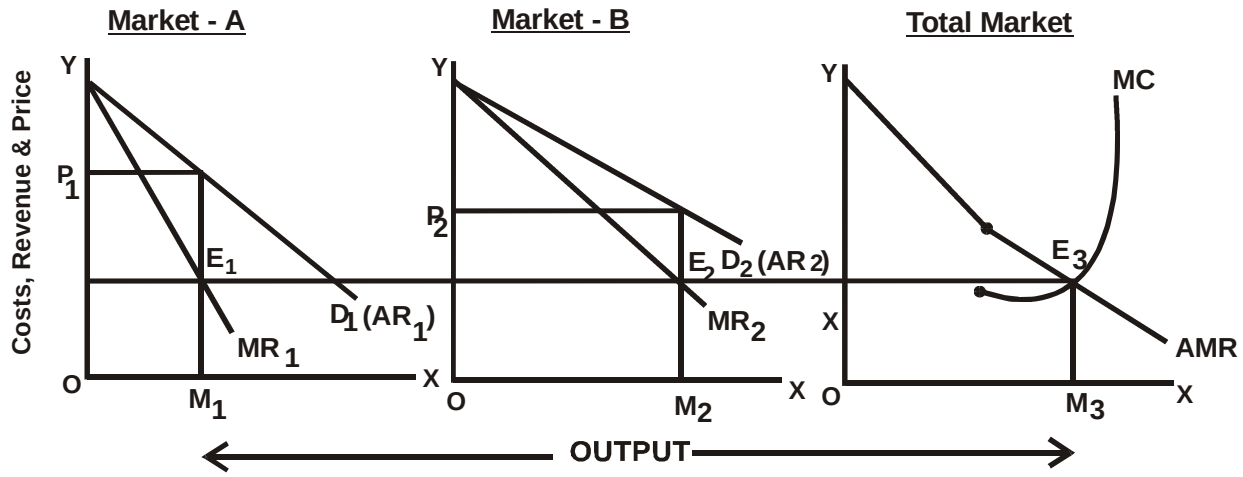
The main aim of price discrimination under monopoly is to get maximum profits. The following conditions must be observed for getting of maximum profits and for price and output determination under discriminating monopoly.

1. The monopolist must fix more price in the case of inelastic demand and less price in the case of elastic demand.

2. All the marginal revenues in different markets must be equal to the marginal cost.

DIAGRAMMATIC EXPLANATION:

The following diagrams explain the price and output determination under discriminating monopoly where there are two markets.



In the above diagrams on X axis the output and on Y axis the costs, revenue and price are determined. In market A, MR_1 is the marginal revenue and D_1 is thedemand or average revenue curves. In this market the demand is inelastic one. In market B, MR_2 and D_2 are te marginal revenue and demand curve respectively. The demand curve is also known as average revenue curve. In this market the demand is elastic one. If we combine the marginal revenue curves of these two markets $(MR_1 + MR_2)$, then we can get the marginal revenue curve (AMR) in the total market. At point E_3 the marginal revenue is equal to marginal cost. Therefore, the output is OM_3. This equilibrium point is extended to market A and market B. The price in market A i.e. OP_1 is more than the price in market B i.e. OP_2.

11.10 DEGREES IN PRICE DISCRIMINATION:

A.C. Pigon hs distinguised the degrees of price discrimination into three on the basis of the degree or extent of price discrimination. Under first type of price discrimination the monopolist will fix different prices to different buyers in that way in which the conservers surplus is not allowed. This type of price discrimination is called perfect price discrimination.

In thesecond type of price discrimination the monopolist is fixing different prices to different buyers in that way in which he allows a part of consumeri surplus but not the complete consumer's surplus.

In third degree of price discrimination the monopolist divides the buyers into two or more calsses or groups or markets and changes different prices in different markets. In this type the markets are divided on the basis of the elasticity of demand. This degree of price discrimination isthe most common one.

11.11 IMPORTANCE OF PRICE DISCRIMINATION:

1. There are several services such as rail transportation etc.. which cannot be worked profitably unless the price discrimination is allowed. Uniform price for such services will lead to low income or losses to entrepreneur. In order to avoid those losses the price discrimination must be implemented.
2. Some times, for promotion of welfare ofthe community the price discrimination is compulsory. For example, if the doctor changes more fee from rich and low fee from the poor, then the public welfare can be promoted.
3. The government can reduce the economic in equalities to some extent with the help of price discrimination.
4. Price discrimination enables the monopolist to obtain a higher total revenue and larger output. Here the output would be identical with the perfectly competitie output. Therefore, the society at large is beniefited, since output under discriminating monopoly is larger than with a single price.

5. When the monopolist fixes higher price in the case of inelastic demand goods and lower price for elastic demand goods and then the demand and output will not be badly effected.

11.12 DIFFERENCES BETWEEN PERFECT COMPETITION AND MONOPOLY:

Perfect competition and monopoly are the too extreme contradictory extreme concepts. There are some difference between perfect competition and monopoly. Perfect competition is that type of market where there are large number of sellers selling similar products and where the activity of single seller or buyer may is said to be existed when the firm iste sole producer or seller of the product where there are no close substitutes for this product.

In perfect competition there are large number of buyers and sellers and all products are homogeneous. In this market there is a free entry and exit of the firms and also perfect information about market conditions. There is also perfect of mobility of factors of production. In perfect competition, there is a uniform price level. In this competition the transport costs should not be included in te price level. There is a difference between firm and industry under perfect competition.

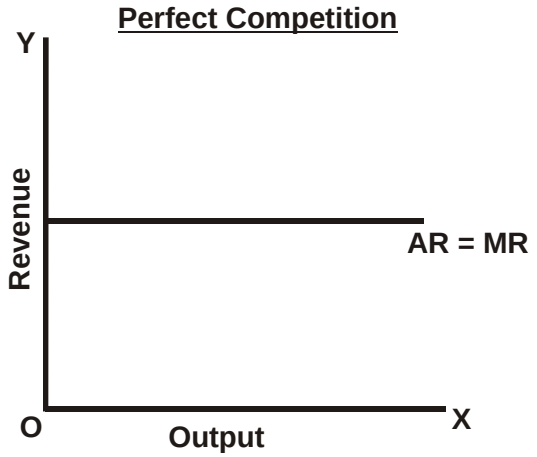
In monopoly market there is only isngle seller or producer. There are no close substitute products for monopoly products. In this market there is no difference between firm and industry. The new firms have no right to enter the market. The monopolist has the controlling power on only the price or output. In this market therevenue curves fall down from left to right with the increase of output.

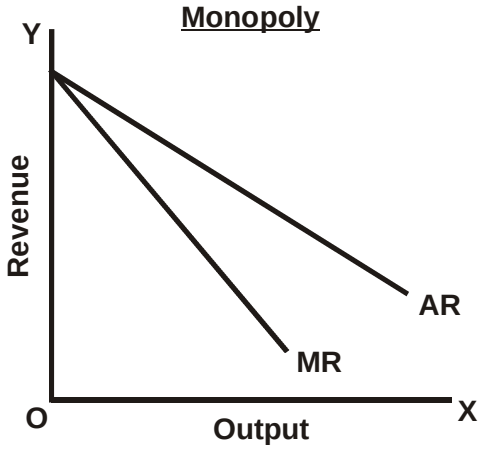
DIFFERENCES:

The following are the main differences between perfect competition and monopoly.

1. **NUMBER OF SELLERS:** In perfect competition there are large number of sellers who are producing homogeneous products. Therefore, the activity of single seller may not influence the market price. But in monopoly there is a single seller. He controls entire supply of the commodities. In this market there is no competition.

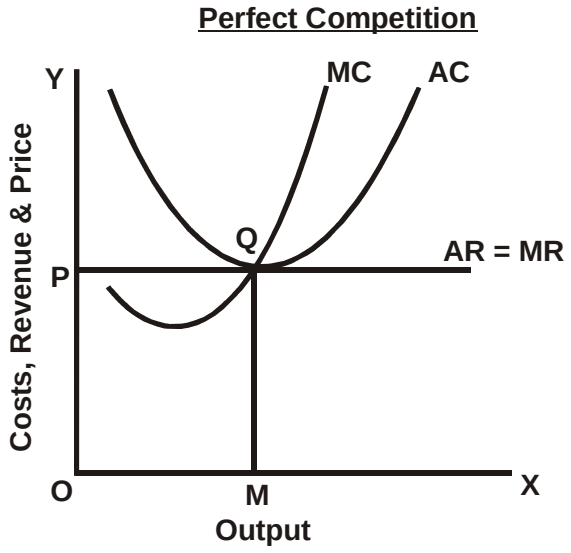
2. **NATURE OF REVENUE CURVES:** In perfect competition because of uniform price the average revenue and marginal revenue are equal. They are parallel to X axis. But in monopoly the average and marginal revenue curves falldown from left to right. We can know these things with the help of following diagrams.

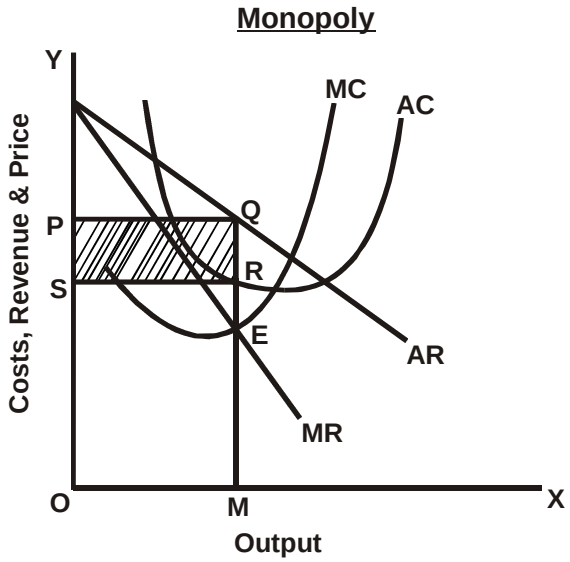




In perfect competition AR and MR both are the same and they are parallel to X axis. In monopoly market AR and MR both are falling down from left to right. If the monopolist wants to sell more, he must reduce the price level andif he wants to fix more price he must reduce the output.

3. **PRICE AND OUTPUT DETERMINATION:** In perfect competition the price and output are determined at that point where MC and MR are equal. But in monopoly where MC and MR both are equal and at that equilibrium point the price is determined on AR line. We can know these things with the help of following diagrams.





In the case of perfect competition MC and MR bothe are equal at point Q and therefore, the point is determined as OM and price as OP. In monopoly market where MC and MR both are equal and at that equilibrium point only the output in determined and on the basis of the price is determined on AR line at point Q. So, the price is determined as OP.

4. **ENTRY AND EXIT OF THE FIRMS:** In perfect competition there is free entry and exit of firms. The new firms may enter the market when the firms are getting abnormal profits and leave the market when they are getting losses. But in monopoly the other firms have no freedom to enter the market.

5. **NATURE OF COST CURVES:** In perfect competition the firm gets an equilibrium position where the marginal cost is at rising stage. If the marginal cost curve falls down, then there is no possibility of equilibriumm between MC and Mr. Under monopoly the firm may get equilibrium position where the MC is at a rising stage or constant or falling stage.

6. **DIFFERENCE BETWEEN FIRM AND INDUSTRY:** There is a difference between firm and industry under perfect competition. Firm is a production unit and industry is a group of similar firms. But in monopoly market, there is no difference between firm and industry and both are same.

7. **NORMAL PROFITS AND ABNORMAL PROFITS:** Under perfect competition in the short period thefirm may get abnormal profits. But in the long run because of free entry and exit, the firm gets only normal profits. But in monopoly the firm may get abnormal profit in the short period as well as in the long period becuase of no free entry of new firms.

8. **NATURE AS AVERAGE COST AT EQUILIBRIUM POINT:** Under perfect competition the average cost becomes minimum at equilibrium point. In the above diagram in the case of perfect competition the average cost becomes minimum at point Q. But in monopoly market the firm attains equilibrium where the average cost is at falling stage. In the diagram in the case of monopoly the average cost curve i.e. Ac is falling stage at the equilibrium point i.e. at point E.

9. **PRICE AND OUTPUT:** In perfect competition the output is more and the price is less and where as in monopoly the output is less andthe price is more.

10. **UNIFORM PRICE AND PRICE DISCRIMINATION:** In perfect competition there is a uniform price and there is no price discrimination. Fixing of different prices to different customers for the same commodity is said to be price discrimination. But in monopoly, there is a possibility for price discrimination. Monopolist can fix different prices to different customers for the same commodities.

11. **PRICE TAKER AND PRICE MAKER:** In perfect competition the firm is a price - taker and where as in monopoly the firm is a price maker. In perfect competition the firms must follow and take the existing price. Under monopoly, the monopolist has full control over the supply ofte commodity and therefore, the monopolist is price - maker.

11.13 CONCLUSION:

In this chapter we discussed the price and output determination under monopoly and discrimination monopoly. Monopoly is said to be existed when a firm is the single seller or producer of a product where there are no clsoe substituter for it. The practice of seelingthe same commodities at different prices to different buyers is known a s price discrimination. the monopolist will get minimum profits if he will fix prices on the basis of elasticity of demand.

11.14 POINTS TO BE REMEMBER:

1. Monopoly is a mrket where there is a single seller in which there are no clsoe substitutes.
2. There are some features with regard to monopoly.
3. Certain conditions are necessary for price and output determination under monopoly.
4. Price and output are determined in monopoly at the time of increasing costs, constant cost and diminishing costs.
5. There is a relationship between monopoly price and elasticity of demand.
6. The practice of selling the same type commodities at different prices to different buyers is known as price discrimination.
7. There are various kinds of price discrimination.
8. The price discrimination under monopoly is possible when certain conditions are prevailing.
9. According to A.C. Pigon there are three degrees of price discrimination.
10. Price discrimination is supported on varius grounds.
11. There are some differences between perfect competition and monopoly.

11.11 KEY CONCEPTS:

1. Monopoly : Monopoly is that type of market where there is a single firm producing the goods in which there are no close substitutes.

2. Price Discrimination : The practice of selling the same commodities at different prices to differnt buyers is known as price discrimination.

3. Personal Discrimination : If the monopolist changes different prices from different customers for the smae type of product on the basis of ability to pay, then it is known as personal discrimination.

4. **Place or Local Discrimination** : In this monopolist changes different prices in different places for the same product. It is also known as geographical discrimination.

5. **Trade or Use Discrimination** : The monopolist will change different prices for different types of uses of the same commodity.

11.16 Model Questions:

I. Essay Questions:

1. What is monopoly and how the price and output are determined under it.
2. What is menat by price discrimination and howthe price and output are determined under discriminating monopoly.
3. Expalin the main differences between perfect competition and monopoly.

II. Short Essay Questions:

1. Write about the features of monopoly.
2. Explain the price and output determination under monopoly in different types of costs.
3. Write about the importance of price discrimination.

III. Very Short Questions:

1. Monopoly price and elasticity of demand.
2. Types of price discrimination.
3. Condititions for price discrimination under monopoly.

11.17 Reference Books:

1. R.A. Bilas : Micro Economic Theory
2. Stonier & Hegue : A Text Book of Economic Theory
3. M.L. Jhingon : Micro Economic Theory
4. K.K. Dewett : Moderen Economic Theory
5. తెలుగు అకాడమి : అర్థశాస్త్ర సిద్ధాంతం
6. Centre for Distance Education : ఆర్థికశాస్త్రం - సిద్ధాంతము

Lesson : 12

MONOPOLISTIC COMPETITION & OLIGOPOLY

12.0 AIMS AND OBJECTIVES:

The main aim fo this chapter is to analyse the equilibriumm of he firm and industry in monopolistic competition. We also observe the nature and price determination under duoply market. In this chapter we study the nature feature and types of price determination under Oligopoly market.

CONTENTS:

12.1 INTRODUCTION:

Prof. E.H. Charuberlin developed the concept of "Monopolistic Competition" in his book "The Theory of Monopolistic Competition" published in 1933. Monopolistic Competition refers to a

market situation where there are many sellers of a commodity, but the product of each seller differs from each other. It in one type of imperfect competition. It is also some times referred as 'group equilibrium'. There are some features of perfect competition and some features of monopoly in this monopolistic competition. Therefore, it is the midway of perfect competition and monopoly.

DEFINITIONS:

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

According to Joe S. Bain "Monopolistic Competition" is found in the industry where there is a large number of small sellers selling differentiated but close substitute products."

12.2 FEATURES:

1. **EXISTENCE OF LARGE NUMBER OF FIRMS:** There are large number of firms in monopolistic competition. The output of each firm is very small in the total output. Each firm acts independently without bothering about the reactions ofthe rivals because of existence of large number of firms.

2. **PRODUCT DIFFERENSTIATION:** Under monopolistic competition there is a product differentiation. In this competition products are not homogeneous as in perfect competition and they are not remote substituter as in monopoly. These products may be close substitutes. For example, colgate tooth paste, promise tooth paste, close-up tooth paste etc... are close substituter. Product differenciation can be brought about in so many ways.

3. **FREE ENTRY AND EXIT:** In monopolistic competition there is a free entry and exit of the firms. There is no difficult for a new firm to enter the market or to leave the market under monopolistic competition. Because of existence of large number of firms there is a free entry and exit.

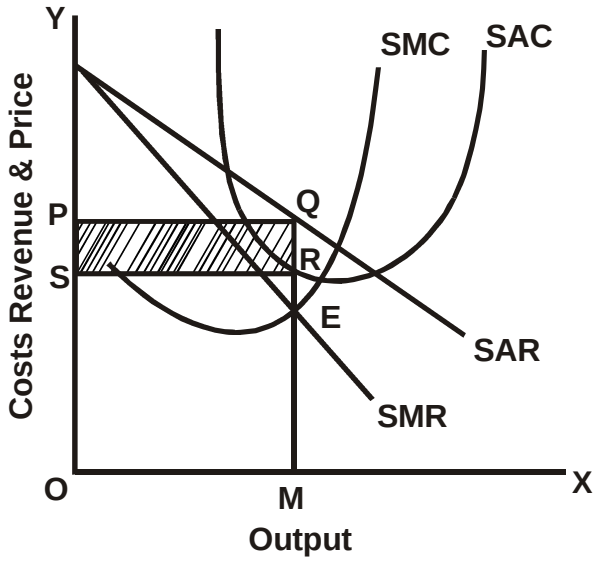
4. **LACK OF PERFECT KNOWLEDGE:** There is no perfect knowledge with regard prices, quality ofthe products and quantity of the product produced in the market. The buyers do not know about all these products. The sellers do not know the exact preferences of buyers and unableto get advantage out of the situation.

5. **EXCESS CAPACITY:** In monopolistic competition the firms produce the goods upto that level where the average cost is at falling stage. The firms do not produce the output upto that level where the long run average cost is minimum. In monopolistic competition the amount of output that is produced by the firm is less than the ideal output. This is called excess capacity.

6. **SELLING COSTS:** Generally the costs on advertisements are commonly known as selling costs. According to chamberlin selling cost is that cost which shifts the demand curve towards the right side. Therefore, the selling costs are useful for the increase of demand for the product. The producer spends on selling costs until where the additional revenue becomes zero. In real sense the selling cost will not promote the welfare of the consumers with the help of advertisements the firms may change the tastes and preferences of the consumers.

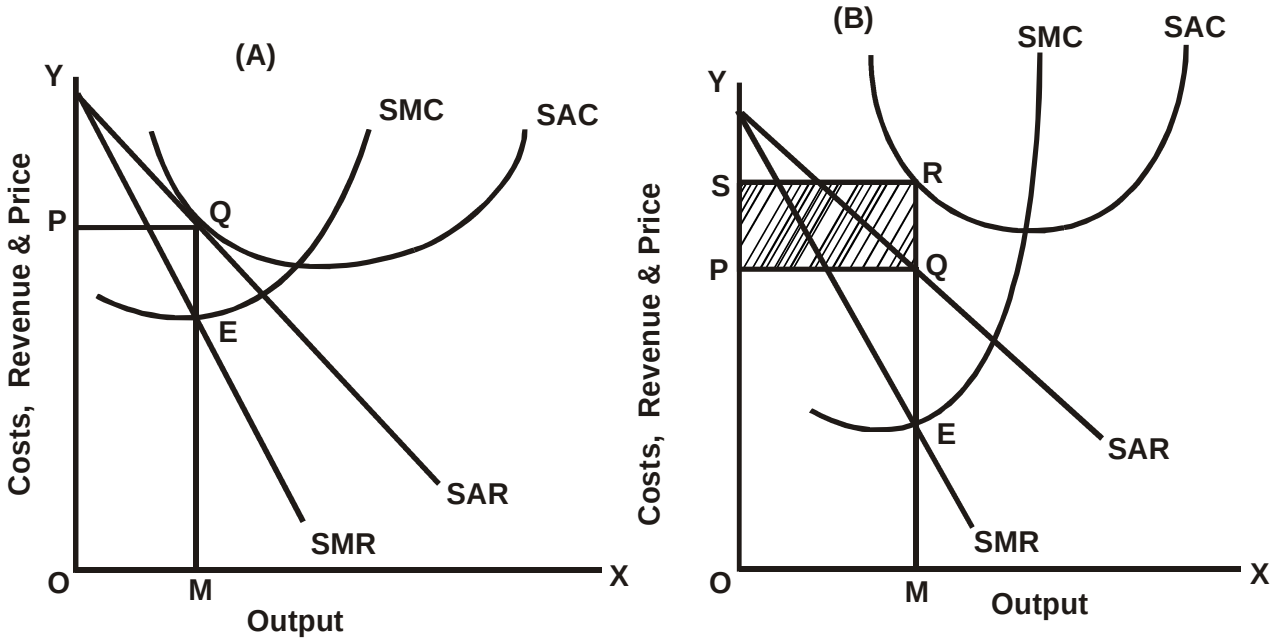
12.3 SHORT RUN EQUILIBRIUM OF THE FIRM UNDER MONOPOLISTIC COMPETITION:

In the short run some firms may get abnormal profits and attains equilibrium position in the following way.



In the diagram on X axis the output and on Y axis the costs, rename and price are determined. SAR is the short run average revenue curve and also demand line. SMR is the short run marginal revenue curve. SAC is the short run average cost curve and marginal revenue curves are equal at point 'E'. Therefore, the output is determined as OM and price is OP. OPQM is the total revenue and OSRM is the total cost. QR is the amount of abnormal profit of one unit. PQRS isthe total amount of profit.

In the short period it is possible that some firms may get abnormal profits like in the above manner. In the same shortperiod some firms may get normal profits and some other firms may get losses also in the following way.



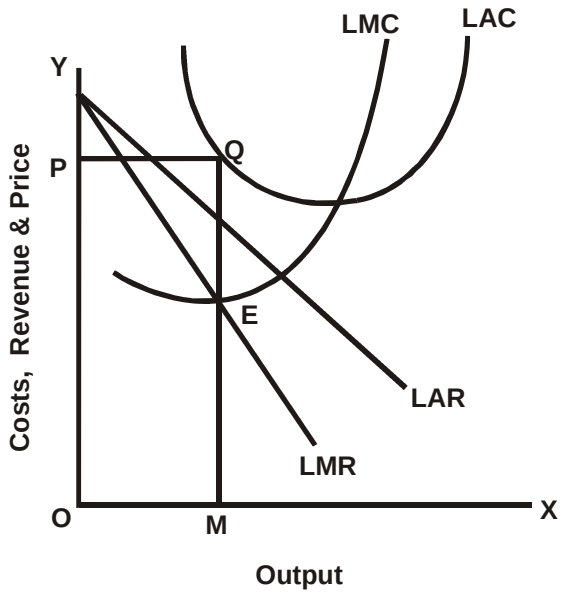
In the diagram 'A' the firm is getting only normal profits which are included in the cost of production. The equilibrium output is OM. At OM output level the price is OP which is also equal to average cost. In the diagram OPQM iste total revenue and also total cost. Therefore the firm is getting only normal profits.

In the diagram 'B' the firm is getting losses. In this diagram at OM output level theprice is OP. But the average cost is OS. So the firm is getting SP or QR amount of unit loss OPQM is thetotal revenue and OSRM is the total cost. So PQRS isthe total amount of loss. Therefore -

OSRM - OPQM = PQRS = Losses

12.4 LONG RUN EQUILIBRIUM:

There is a free entry and exit under monopolistic competition. IF the xisting firms are getting abnormal profits, then the new firms may enter the market and if the firms are getting losses, then they have freedom to leave the market. Therefore, in the long period the firms get only normal profits. This can be explained with the help of following diagram.



In the above diagram on X sxis the output and on Y axis the costs revenue and price are determined. LAC isthe long run average cost curve and LMC isthe long run marginal cost curve. LAR isthe long run average revenue curve and LMR isthelong run marginal revenue curve. The LMC and LMR are equal at point E. So the output is determined as OM and price as OP. In the diagram at equilibrium point the average cost is eequal to average revenue. so thefirm is getting only normal profits in the long run. These normal profits are included in the cost of production.

12.5 DIFFERENCE BETWEEN PERFECT COMPETITION AND MONOPOLISTIC COMPETITION:

There are some differences between perfect competition and Monopolistic Competition.

1. Under perfect competition in the long run the firm gets an equilibrium position at that level where the AC isthe minimum and where as in monopolistic competition thefirm gets an equilibrium position where the AC is at falling stage. Therefore, in monopolistic competition, there is an excess capacity.

2. In perfect competition the revenue curves are parallel to X axis due to uniform price. In monopolistic competition therevenue curves are falling down from left to right.

3. In perfect competition all products are homogeneous in quantity and quality. But in monopolistic competition there is a product differentiation.

4. There is a perfect information about market conditions in perfect competition. But in monopolistic competition there is no perfect information about market conditions.

12.6 DIFFERENCE BETWEEN MONOPOLY AND MONOPOLISTIC COMPETITION:

Even though there are some similarities between monopoly and monopolistic competition, there are some differences between these two markets.

1. In monopoly there is a single seller and in monopolistic comeptition there are large number of sellers.

2. In monopoly, the firm may get abnormal profits in the short period as well as in the long period. But in the case monopolistic competition, the firm may get abnormal profits normal profits. In monopoly, there is no free entry of new firms and therefore, the monopoly firm may get abnormal profits in the short run as well as in the long run. In monopolistic competition there is a free entry and exit of new firms and therefore, thefirms in the monopolistic competition can get only normal profits in the long run.

3. The absolute monopoly market is some what not a realistic one in practical life. The monopolistic competition is very nearer to practical and real life.

12.7 DUOPOLY:

Duo means two and poly means sellers. Therefore, duopoly refers to that type of market situation in which there are two sellers. There are two types of price determination under duopoly market - 1. Pricing under duopoly without product differentiation, 2. Pricing with product differentiation.

1. PRICING WITHOUT PRODUCT DIFFERENTIATION:

A. COLLUSIVE PRICE: when there are two sellers produceing or selling idential products, there may be collusion between these two sellers. They may come to a agreement and divide the market between them and fix the price collectively. In such case it will be similar to that of monopoly market.

B. INDEPENDENT PRICING: There may be continuous price-wear between the two sellers if there is no agreement between these two sellers. Each firm way try to drive out the other seller from the market by reducing the price. Some times te price may be lower than the average cost and it may lead to losses also.

C. LONG RUN PRICE: Under duopoly market if there is no product differentiation, the consumers do not have any special preference for any producer. So in the long run. The two producers may charge the same price. Therefore, these two sellers may earn only normal profits.

COURNOT MODEL: A model of Oligopoly, projecting duopoly was first put forth by cournot, a French economist in 1838. This model isdeveloped on the basis of certain assumption -

1. There are two sellers selling idential products.
2. There are large number of buyers.
3. The total output must be shold out.
4. The cost of production is assumed to be zero.
5. Each seller knows the demand curve of his product.
6. Each seller takes the supply & his rival to be constant and ignorant about his rival's plans of oiet.
7. Each seller wants to acquine maximum net revenue.

On the basis of above assumptions cournot developed his model. Cournot model tells us that each producer will be supplying exactly equal qualities of output and the price charged will be the same.

EDGEWORTH MODEL: Edgeworth also developed his model on the basis of the same assumptions of cournot - except one assumption. Edgeworth did not take the assumption of constant supply of rivals. e has taken the assumption of constant price of his rivals. There will not be any price stability under duopoly, according to Edgeworth. According to this model, the price changes continuously between competitive price and monopolistic price. According to Edgeworth duopoly situation is unstable and indeterminate equilibrium.

CHAMBERLIN MODEL: Prof. Chamberlin advocated a rtable equilibrium model. He recognised the mutual interdependence of the two sellers. According to chamberlin each seller is intelligent and recognises the importance of natural agreement between the two sellers. This will head to a spirti of stable monopoly equilibrium.

2. **PRICING WITH PRODUCT DIFFERENTIATION:** Under duopoly market, if there is product diffrentitaion, each seller may act as monopoly andis having his own market. Like in monopoly each seller decides his price and output. The seller who sells the superior quality ofte product may earn abnormal profits when compared to the otehr seller.

12.8 OLIGOPOLY MARKET:

The term 'Oligopoly' is derived two Greek words namely 'Oligoi' which means 'a few' and 'pollein' which means 'to sell'. Therefore, Oligopoly refers to that form of imperfect competition where there will be only few sellers producing either homogeneous products or products which are close substituites. So Oligopoly market prevails when an industry is made up of a few firms producing either identical products or differentiated produts. Oligopoly may also be referred as competition among the few.

DEFINITIONS:

According to Mc. Connel, "Oligopoly is a market situation in which number of firms in an industry is so small that each must consider the reaction of rivals in formulating its price policy".

In view of P.C. Dooley, "An Oligopoly is a market of only afew sellers offering wither homogeneous or differentiated products."

12.9 FEATURES OF OLIGOPOLY:

1. **INTERDEPENDECE:** Existence of interdependence of firms in te main feature of Oligopoly market. The price and output decisions of one firm will effect the other firms.

2. **INDETERNINATE DEMAND CURVE:** In Oligopoly market no firm can fore cast with fair degree of certainity about the nature and position of its demand curve. The firm can not make an estimation of sales of its products if it reduces its price.

3. **ELEMENT OF MONOPLOLY:** Monopoly element may be prevailed in the Oligopoly market. In this market there are only few firms andeach firm controls a large share of te market and therefore, we can findout theelement of monopoly even in oligopoly to some extent.

4. **IMPORTANCE OF SELLING COSTS:** In Oligopoly market each firm employs various techniques of advertisements. Indeterminate demand leads to making of advertisements to make the average revenue curve more favourable.

5. **PRICE RIGIDITY:** In Oligopoly there is price rigidity. The price will be kept inchanged due to fear of retaliation and the price will tend to inflexible. Every firm knows the ultimate out come ofthe price change and therefore no firm is willing to change its price. In order to avoid theretaliation among the consumers andto discourge the entry of new firms the existing firms want to maintain the stable price.

12.10 PRICE DETERMINATION UNDER OLIGOPOLY:

There are mainly three types of price determination under Oligopoly market -

A. Independent Pricing

B. Pricing under collusion

C. Price leadership

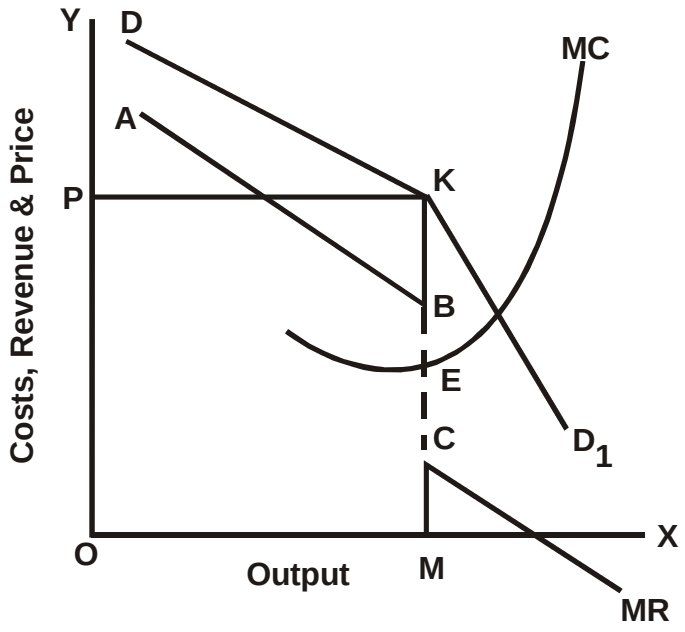
A. **INDEPENDENT PRICING:** In Oligopoly market, the firms may produce either identical products or products with close subtitutes. If there is a product differentiation under Oligopoly each firm can act as a monopoly and fixes the price independently. If these firms produce identical products, it is difficult to know theprice determination in accurate manner. There may be heavy competition among these firms and finally they may fix the common reasonable price which can not be changed. But this policy of independent pricing can not withstand in the market.

B. PRICING UNDER COLLUSION: Most of the firms have the opinion that independent price determination leads to uncertainity. To avoid this defect there is a tendency among the oligopoly firms to act collectively by collusion. In this method these few firms may make 'cartel' arrangements. The firms may agree to share the market even though they are producing identical products. Generally the antralised cartel determines the output produced by different forms and the price is also determined which is the most accetable by all the firms.

C. PRICE LEADERSHIP: When the other firms follow the price which is determined by one firm in oligopoly then we can say that there is a prie leadership. There are various ways of taking of leadership in price determination in oligopoly market. A dominent firm orthe firm with lowcosts or a well established firm or a old firm may take the leadership and fixes the price. Generally the other firms will followthis price.

12.11 DIAGRAMMATIC EXPLANATION - KINKED DEMAND METHOD:

In Oligopoly the popular method with regard to price and output determination is the method of 'Kinked demand method'. This concept was introduced by Paul M. Sweezy. We can know the price and output determination with the help of following diagram.



In the diagram on X axis the output and Y axis the costs, revenue and price are determined. The demand curve DD_1 has kink at point $'K'$. It is the average revenue curve. The point $'K'$ dividesthe demandcurve into two parts i.e., DK and KD_1. DK part of demand curve is more

elastic one and KD_1 part of demand curve is less elastic one. There is a price rigidity at point K because of several reasons. If particular firm rises its price, the otehr firms do not follow. Therefore, the demand for the particular product will bereduced on the otherand, if the particular firm cuts its price, its rivals will react and they will also reduce their [rices. So, no firm has thedesire to increase or decrese the price level. Therefore, there is a price rigidity in Oligopoly market. In the diagram te marginal revenue curve is discontinuous between B and C . AMrginal cost is equal to marginal revenue at point E. Therefore, the output is determined as OM and the price as OP.

In inperfect competition, the monopolistic competition duopoly and oligopoly are the most important concepts. In monopolistic competition there are large number of firms and there is a product differentiation. In this market we can findout somefeatures of perfect competition and some otehr features of monopoly. In duopoly there are only two sellers. In Oligopoly market there are only few sellers. Price rigidity in te main feature of oligopoly market. Monopolistic competition and oligopoly market situations are very nearer to thereal life.

12.12 POINTS TO BE REMEMBER:

1. Monopolistic Competition is a midway of both perfect competition and monopoly.
2. Existence of large number of firms, product differentiation importance of selling costs are some ofthe main features of monopolitic competition.
3. Under monopolitic competition in the short run some firms may get abnormal profits, some otehrs get normal profits and some more firms may get even losses. But in the long run all firms get only normal profits.
4. There are some differences between perfect competition and monopolistic competition and monopoly and monopolistic competition.
5. In duopoly market there are two sellers. In this market prices are determined without product differentiation and with product differentiation.
6. Oligopoly market refers to that type of imperfect competition where there will be only few sellers producing either homogeneous products or products which are close substitutes.
7. Interdependence, price rigidity etc... are some ofthe features of Oligopoly market.
8. In Oligopoly market the popular method with regard to price and output determination is the method of 'Kinked demand method'.

12.13 IMPORTANT CONCEPTS:

1. **PRODUCT DIFFERENTIATION:** Product differntiation is the main feature of monopolitic competition. In this market the products are different but close substituter.
2. **SELLING COSTS:** Generally the costs on advertisement are known as selling costs. Selling costs are useful for increase ofthe demand for the product.

3. **EXCESS CAPACITY:** In monopoly and monopolistic competition the output is not produced upto that level where the average cost is minimum. Therefore, the amount of output that is produced by the firm is lessthan the ideal output. this is called excess capacity.

4. **DUOPOLY:** 'Duo' means 'few' and 'poly' mans 'sellers'. Therefore, duopoly is that type of market where there are only two sellers.

5. **OLIGOPOLY:** Oligopoly refers to that type of imperfect comeptition where there will be only few sellers producing either homogenous products or differential products.

6. **PRICE RIGIDITY:** It is the main feature of Oligopoly market. The price will be kept un changed due to fear of relatiation from rivals. Every firm knows the ultimate out come oftheprice change and therefore, no firm is willing to change its price.

7. **KINKED DEMAND CURVE:** This concept was introduced by paul M. Sweezy. We can find this Kinked demand curve in Oligopoly market. Knked demand curve method represents the price rigidity.

12.14 MODEL QUESTIONS:

I ESSAY QUESTIONS:

1. Explainthe short run and long run equilibrium of the firm under monopolistic competition.
2. Write about te features andprice determination under Oligopoly market.

II SHORT ESSAY QUESTIONS:

1. Explain the features of Oligopoly.
2. Write about the features of monopolistic competition.
3. Write about te price determination with help of Kinked demand curve in Oligopoly market.

III VERY SHORT QUESTIONS:

1. Duopoly Market
2. Product Differentiation
3. Kinked Demand Curve
4. Price Rigidity

12.15 REFERENCE BOOKS:

1. Stonier & Hague : A Text Book of Economic Theory
2. R.A. Bilas : Micro Economic Theory
3. M.L. Jhingon : Micro Economic Theory
4. K.K. Dewett : Modern Economic Theory
5. తెలుగు అకాడమి : అర్థశాస్త్ర సిద్ధాంతం
6. Centre for Distance Education : ఆర్థికశాస్త్రం - సిద్ధాంతము

Lesson : 13

NATIONAL INCOME

13.0 AIMS AND OBJECTIVES:

The main aim of this chapter is to give a brief note on National Income. By the end of this lesson you can under stand the following:

* What is National Income and definitions
* Concepts and Components of National Income
* Measurement of National Income
* Difficulties and Importance of National Income

CONTENTS:

13.1 INTRODUCTION:

How do you know whether a particular country is developing or developed ? It is an economy progressing or deteriorating? How much is the value of goods and services produced in a given economy ? What is the standard of living in a particular country? All these questions have only one answer - national income - that is, the income of a country. It is the aggregate of incomes earned by all the individuals in a country. It is a measure of output and income and helps us to find out how an economy is growing from year to year. A healthy growth rate of national income indicates that the people in the country earn larger incomes and enjoy a high standard of living.

This chapter deals with the concept of national income, factors determining national income, concepts used in measurement and difficulties in measurement. Certain emerging concepts in measuring social and economic advancement are also discussed here.

13.2 NATIONAL INCOME - DEFINITIONS:

The definitions of national income can be grouped into two classes. One, the traditional definitions advanced by Marshal, Pigou and Fisher; and two, modern definitions.

THE MARSHALLIAN DEFINITION: According to Marshall – "The labour and capital of a country acting on its natural resources produce annually a certain net aggregate of commodities, material and immaterial including services of all kinds… This is the true net annual income or revenue of the country or national dividend". In this definition, the word 'net' refers to deductions from the gross national income in respect of depreciation and wearing out of machines. And to this must be added income from abroad.

The Pigovian Definition – Marshall's follower, A.C. Pigou, has in his definition of national income included that income which can be measured in terms of money. In the words of Pigou, "National income is that part of objective income of the community, including of course income derived from abroad which can be measured in money." This definition is better than that of Marshallian definition. It has proved to be more practical also. While calculating the national income now a days, estimates are prepared in accordance with the two criteria laid down in this definition. First, avoiding double counting, the goods and services which can be measured in money are included in national income. Second, income received on account of investment in foreign countries is included in national income.

Fisher's Definition – Fisher adopted 'consumption' as the criterion of national income whereas Marshall and Pigou regarded it to be production. According to Fisher, "The national dividend or income consists solely of services as received by ultimate consumers, whether from their material or from their human environments. Thus, a piano, or an overcoat made for me 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.

But the definitions advanced by Marshall, Pigou and Fisher are not altogether flawless. However, the Marshallian and Pigovian definitions tell us of the reasons influencing economic welfare,

whereas Fisher's definition helps us compare economic welfare in different years.

From the modern point of view, Simon Kuznets has defined national income as "the net output of commodities and services flowing during the year from the country's productive system in the hands of the ultimate consumers," whereas, in one of the reports of United Nations, national income has been defined on the basis of the systems of estimating national income, as net national product, as addition to the shares of different factors, and as net national expenditure in a country in a year's time. In practice, while estimating national income, any of these three definitions may be adopted, because the same national income would be derived, if different items were correctly included in the estimate.

13.3 COMPONENTS OF NATIONAL INCOME:

The various components of the National Income are:

1. Consumption (C)
2. Gross Domestic Investment (I)
3. Government Expenditure (G)
4. Net Foreign Investment or Net Investment abroad (X - M)

13.3.1 CONSUMPTION: By consumption, we mean the expenditure made on good and services which directly satisfy our wants. e.g., cloth, food products, education and health services etc. A major portion of the national income comprises only consumption goods and services. Consumption of households and firms, which are not for making profit forms the private consumption demand.

13.3.2 GROSS DOMESTIC INVESTMENT: The expenditure made on producer goods by the firms to produce goods and services is the investment expenditure. e.g., machinery and tools etc. They satisfy the wants indirectly. These goods can produce other producer goods or consumer goods. Producer goods are not essential for the growth in national income.

13.3.3 GOVERNMENT EXPENDITURE: The expenditure incurred on various goods and services by the government is the public expenditure. Government provides roads, schools, medical facilities, irrigation, electricity, infrastructure facilities etc. to the society. It also provides administrative services, defence services etc.

13.3.4 NET FOREIGN INVESTMENT: If the value of exports is more than the value of imports, other countries are indebted to our country. So, it must be added to national income. If the value of imports is more than exports, that difference must be deducted from national income.

Exports - Imports = Net Foreign Investment

$Y = C + I + G + (X - M)$ where

Y = National Income (Y)

C = Private consumption or national consumption

I = National investment or Aggregate domestic investment

G = Public expenditure or Government consumption

X - M = Net Foreign Investment

13.4 CONCEPTS OF NATIONAL INCOME:

There are various concepts of national income which we study one by one.

GROSS NATIONAL PRODUCT (G.N.P.):

This is the basic social accounting measure of the total output or aggregate supply of goods and services. **Gross National Product is defined as the total market value of all final goods and services produced in a year.**

The two things must be noted in regard to gross national product. First it measures the market value of the annual output. In other words, **G.N.P. is a monetary measure.** There is no other way of adding up the different sorts of goods and services produced in a year except with their money prices. But in order to know accurately the changes in physical output, the figure for gross national product is adjusted for price changes.

Secondly, **double counting has to be avoided.** This means that for calculating gross national product accurately, all goods and services produced in any given year must be counted once, but not more than once. Most of the goods go through a series of production stages before reaching a market. As a result, parts or components of many goods are bought and sold many times. Hence to avoid counting several times the parts of goods that are sold and resold, gross national product only includes the market value of final goods and ignores transactions involving intermediate goods.

What do we mean by final goods ? Final goods are those goods which are being purchased for final use and not for resale or further processing. Intermediate goods, on the other hand, are those goods which are purchased for further processing or for resale. The sale of final goods is included in gross national processing or for resale. The sale of final goods is included in gross national product while the sale of intermediate goods is excluded from gross national product. Why ? Because the value of final goods includes the value of all intermediate goods used in their production. The inclusion of intermediate goods would involve double counting and will, therefore, give an exaggerated estimate of gross national product.

An example will clarify this point. Suppose in our economy only two things are produced, raw cotton worth Rs. 100 and cotton cloth worth Rs. 200. Now what shall be the measure of gross national product ? For finding it, if we add up the sales value of cloth and cotton, there is clearly an element of double counting in the sense that we have added the value of cotton twice – once as the sales value of cotton and secondly when we added to it the value of cloth. Actually, the value of cloth includes also the value of cotton, which having been accounted for already, should not be added a second time.

The "**gross national product at market prices"** may be obtained by adding up :

(a) What private persons spend on consumption, or what is called **personal consumption expenditure;**

(b) What private business spends on replacement, renewal and new investment. This is called **gross domestic private investment;**

(c) What the rest of the world spends on the output of the national economy over and above what this economy spends on the output of the rest of the world, i.e., export surplus or **net foreign investment;** and

(d) What the government spends on the purchase of goods and services, i.e., **government purchases.**

NET NATIONAL PRODUCT (N.N.P.): The second important concept of national income is that of net national product. In the production of gross national product of a year, we consumes or use up some capital, i.e., equipment, machinery, etc. The capital goods, like machinery, wear out or fall in value as a result of their use in the production process. This consumption of fixed capital or fall in value of capital due to wear and tear is called depreciation. When changes for depreciation are deducted from the gross national product, we get the net national product. Clearly, it means the market value of all final goods and services after providing for depreciation therefore, it is also called 'national income at market prices'. Therefore,

Net National Product

Or

National Income at market price = Gross National Product – Depreciation.

NATIONAL INCOME AT FACTOR COST: National income at factor cost means the sum of all incomes earned by resource suppliers for their contribution of land, labour, capital and entrepreneurial ability which go into the year's net production, or, in other words, national income (or national income at factor cost) shows how much it costs society in terms of economic resources, to produce that net output. It is really the national income at factor cost for which we use the term National Income.

The difference between national income (or national income at factor cost) and net national product (national income at market prices) arises from the fact that indirect taxes and subsidies cause market prices of output to the different from the factor incomes resulting from it.

On the other hand, a subsidy causes the market price to be less than the factor cost. Suppose handloom cloth is subsidized at the rate of 13 P a meter and it sells at 81 P. Then while the consumer pays 81 P. Per meter, the factors engaged in the production and distribution of such cloth receive Re. 1 per meter. The value of handloom cloth at factor cost would thus be equal to its market price plus the subsidies paid on it.

It follows, therefore, that the national income (or national income at factor cost) is equal to net national product minus indirect taxes plus subsidies.

National Income

or

National Income at = Net National Product (National Income at Market Price) –

Indirect Factor Cost Taxes + Subsidies

PERSONAL INCOME (P.I.): Personal Income is the sum of all incomes actually received by all individuals or households during a given year. National income, that is, total income earned, and personal income, that is, income received, must be different for the simple reason that some income which is earned – social security contributions, corporate income taxes and undistributed corporate profits – is not actually received by households and, conversely, some income which is received – transfer payments – is not currently earned. (**Transfer Payments** are old-age pensions, unemployment compensation, relief payments, interest payments on the public debt, etc.)

Obviously, in moving from national income as an indicator of income earned to personal income as an indicator of income actually received, we must subtract from national income those three types of incomes which are earned but not received but not currently earned. Therefore

Personal Income = National Income – Social Security Contribution – Corporate Income Taxes – Undistributed Corporate Profits + Transfer Payments.

DISPOSAL INCOME (D.I.): After a good part of personal income is paid to government in the form of **personal taxes** like income tax and personal property taxes, what remains of personal income is called **disposable income.**

Disposable Income = Personal Income – Personal Taxes.

Disposable Income can either be consumed or saved. Therefore

Disposable Income = Consumption + Saving.

13.5 METHODS OF MEASURING NATIONAL INCOME:

Production and sale of goods and services and the generation of income which accompanies these activities are processes that go on continuously. Production gives rise to income; income gives rise to demand for goods and services; and demand in turn gives rises to expenditure; again expenditure leads to further production. The circular flow of production, income and expenditure represents three related phases, namely, production, distribution and disposition. These three phases enable us to look at national income in three ways – as a flow of goods and services, as a flow of incomes or as a flow of expenditure on goods and services. To measure it at each phase, we require different data and methods. If we want to measure it at the phase of production, we have to find out the sum of net values added by all the producing enterprises of the country. If we want to measure it at the phase of income distributed, we have to find out the total income generated in the production of goods and services. Finally, if we want to measure it at the phase of disposition, we have to know the sum of expenditures of the three spending units in the economy, namely, government, consumer households, and producing enterprises.

Corresponding to the three phases, there are three methods of measuring national income. They are :

(i) Value Added Method (alternatively known as Product Method);

(ii) Income Method; and

(iii) Expenditure Method.

(I) VALUE ADDED METHOD: Value added method measures the contribution of each producing enterprise in the domestic territory of the country. This method involves the following steps:

a. Identifying the producing enterprise and classifying them into industrial sectors according to their activities.

b. Estimating net value added by each producing enterprise as well as each industrial sector and adding up the net value added by all the sectors.

All the producing enterprises are broadly classified into three main sectors namely: (1) Primary sector which includes agriculture and allied activities; (2) Secondary sector which includes manufacturing units and (3) Tertiary sector which include services like banking, insurance, transport and communications trade and professions. These sectors are further divided into sub-sectors and each sub-sector is further divided into commodity group or service-group.

For calculating the net product of the industrial sector we need to know about gross output of the sector, the raw materials and intermediate goods and services used by the sector and the amount of depreciation. For an individual unit, we subtract from the value of its gross output, the value of the raw material and intermediate goods and services used by it and, from this, we subtract the amount of depreciation to get net product or value added by each unit. Adding value-added by all the units in one sub-sector, we get value-added by the sub-sector. Again adding value-added or net products of all the sub-sectors of a sector we get value-added or net product of that sector. For the economy as a whole, we add net products contributed by each sector to get Net Domestic Product. If the information regarding the final output and intermediate goods is available in terms of market prices we can easily convert it in terms of factor costs by subtracting (or adding as the case may be) net indirect taxes to it. If we add or subtract net income from abroad we get Net National Product at factor cost which is nothing but National Income.

Case should be taken to include the value of the following items:

(a) Own account production of fixed assets by government, enterprises and households.

(b) Production for self-consumption.

(c) Imputed rent of owner occupied houses.

Care should also be taken not to include sale of second-hand machines because they were counted as a part of production in the year in which they were produced. However, brokerage and commission earned by the dealers of second-hand goods are a part of production and hence included while calculating total value-added.

Moreover, large areas of production activities are excluded for varying reasons. Their net products cannot be valued either because there is no acceptable way of valuing them (which is true in the case of services of housewives or self-

services in homes or services of friends) or because of the difficulty of securing data of the subsistence producing units particularly in underdeveloped countries.

Similarly, adequate data regarding output, raw materials etc. are not often available from many proprietorships, partnerships, nonprofit institutions and governments. Lack of adequate and reliable data is a serious problem in the measurement of the national incomes of under developed countries.

The product method thus gives information about the industrial origins of national income. Additionally net income from abroad should also be included or subtracted to get a true picture of national income.

(II) INCOME METHOD: Different factors of production pool their services for carrying out production activities. These factors of production, in return, are paid for their services in the form of factor incomes. Thus labour gets wages, land gets rent, capital gets interest and entrepreneur gets profits. In other words, whatever is produced by a producing unit is distributed among the factors of production for their services and aggregate of factor incomes of all the factors of production of all the producing units from the subject matter of calculation of national income by income method.

Only incomes earned by owners of primary factors of production are included in national income. Transfer incomes are excluded from national income. Thus, while wages of labourers will be included, pensions of retired workers will be excluded from national income.

Labour income includes, apart from wages and salaries, bonus, commission, employers' contribution to provident fund and compensations in kind. Non-labour income includes dividends, undistributed profits of corporations before taxes, interest, rent, royalties, profits of unincorporated enterprises and of government enterprises.

However, normally, it is difficult to separate labour income from capital income because in many instances people provide both labour and capital services. Such is the case with self-employed people like lawyers, engineers, traders, proprietors etc. in economics where subsistence production and small commodity production is dominant most of the incomes of people would be of mixed type. In sectors such as agriculture, trade, transport etc. in underdeveloped countries (including India), it is difficult to differentiate between labour element and capital element of incomes of the people. In order to overcome this difficulty a new category of incomes, called mixed income is introduced which includes all those incomes which are difficult to separate.

Care has to be taken to see that transfer incomes do not get included in national income. In this context it is worthwhile to note that personal income which is income of household sector should not be confused with national income. While personal income includes transfer payments, national income does not. Similarly, illegal incomes, windfall gains, death duties, gift tax and sale proceeds of second-hand goods are not included while calculating national income.

Net income from abroad need not be added separately since the incomes received by people include net foreign incomes as well. But if national income is calculated not from incomes received by the people but from data regarding incomes paid out by producers then net income from abroad would have to be added separately because incomes paid by producers would total to domestic income. To arrive at national income, net income from abroad should be added to domestic income.

(III) EXPENDITURE METHOD: The various sectors – household sector, business sector and government sector either spend their incomes on consumer goods and services or save a part of their incomes or we can say that they spend a part of their incomes on on-consumption goods (or capital goods).

Total expenditure in an economy consists of expenditure on financial assets, on goods produced in preceding periods, on raw materials and intermediate goods and services and on final goods and services produced in the current period.

Expenditure on financial assets which are produced and owned within the country is excluded but expenditure on financial assets of foreign countries is included in national expenditure. However, only the net expenditure i.e., the difference between expenditure on foreign financial assets by residents and expenditure on the country's financial assets by non-residents or foreign financial assets by residents and expenditure on the country's financial assets by non-residents or foreigners is incorporated. This difference is also called net foreign investment. Goods produced in preceding years are also excluded from national income because they have been accounted for in the national incomes of the periods when they were produced. Similarly, expenditure on raw materials and intermediate goods and services are excluded because otherwise there would be double counting of some of the items included in the national income. Government expenditure on pensions, scholarships, unemployment allowance etc. should be excluded because these are transfer payments.

Thus, only expenditure on final goods and service produced in the period for which national income is to be measured and net foreign investment are included in the expenditure method of calculating national income.

Expenditure on final goods and services is broadly classified into expenditure on consumer goods and service (also called consumption expenditure) and expenditure on capital goods (also called investment expenditure). Consumption expenditure is classified into private consumption expenditure of the household sector and government consumption expenditure; and investment expenditure is classified into private investment expenditure by business sector and investment expenditure by government. To the total domestic investment we add net foreign investment in order to arrive at national investment. Thus, the aggregates resulting from the expenditure method measured at market prices are as follows :

Gross national expenditure = Consumption expenditure + net domestic investment + net foreign investment + replace expenditure (i.e., expenditure on replacement investment).

Net national expenditure = Consumption expenditure + net domestic investment + net foreign investment.

Net domestic expenditure = Consumption expenditure + net domestic investment.

All the three methods mentioned above should ideally lead to the same figure of national income and therefore national income of a country should be measured by these methods separately to get a three dimensional view of the economy. This helps the government to analyses the level of production and economic welfare in the economy, to analyses stability and growth of the economy and to formulate appropriate economic policies of the government. Moreover, each method provides a check on the accuracy of the other methods. However, it is easier said than done. Because of lack of proper and reliable data it is very difficult to estimate national income by each method separately. This is especially so in undeveloped economies.

As a matter of fact, countries like India are unable to estimate their national income wholly by one method. The contributions of different sectors to the total national income are estimated by different methods. Thus, in agricultural sector net value added is estimated by the production method, in small scale sector net value added is estimated by the income method and in construction sector net value added is estimated by the expenditure method.

Income method may be most suitable for developed economies where people properly file their income tax returns. With the growing facility in the use of the commodity flow method of estimating expenditures, an increasing proportion of the national income is being estimated by the expenditure method.

13.6 DIFFICULTIES:

To calculate the national income of a country is a complicated problem and is beset with the following difficulties:

(1) First there is the difficulty of defining ‘nation’ in national income. Every nation has its political boundaries, but in the national income is also included the income earned by the nationals of a country in foreign country beyond the territorial boundaries of the country.

(2) National income is always measured in money, but there are a number of goods and services which are difficult to be assessed in terms of money, e.g., painting as a hobby by an individual, the bringing up of children by the mother. Similarly, when the owner of a firm gets married to his aldy secretary, her services, though a part of national income, are not included in it. By excluding all such services from it, the national income will work out to be less than what it actually is.

(3) The greatest difficulty in calculating the national income is of double counting, which arises from the failure to distinguish properly between a final and an intermediate product. There always exists the fear of a good or a service being included more than once. If it so happens, the national income would work out to be many times

the actual. Flour used by a bakery is an intermediate product and that by a household the final product. To solve this difficulty, only the final goods and services are taken into account, and that is not so easy a task.

(4) Income earned through illegal activities such as gambling, or illicit extraction of wine, etc. is not included in national income. Such goods and services do have value and meet the needs of the consumers. But by leaving them out, the national income workers out to less than the actual.

(5) Then there arises the difficulty of including transfer payments in the national income. Individuals get pension, unemployment allowance and interest on public loans, but whether these should be included in national income is a difficult problem. On the one hand, these earnings are a part of individual income and on the other, they are government expenditure. To avoid this difficulty, these are deducted from national income.

(6) Capital gains or losses which accrue to property owners by increases or decreases in the market value of their capital assets or changes in demand are excluded from the GNP because such changes do not result from current economic activities. It is only when capital gains or losses are the result of the current flow or non-flow of productive activities that they are included in the GNP. “Those changes in the value of goods that result from ungovernable or unpredictable causes are treated as accidental shifts that are outside current activity proper. Those changes in value that can be anticipated and insured, against, such as fire and flood, are also excluded because the adjustment for such shifts in value has already been charged against the operation of previous years through insurance premiums”.

(7) All inventory changes whether negative or positive are included in the GNP. The procedure is to take positive or negative changes in physical units of inventories and multiply them by current prices. Them this figure is added to total current production of the firm. But the problem is that firms record inventories at their original costs rather than at replacement costs. When prices rise there are gains in the book value of inventories. Contrariwise, there are losses when prices fall. So the book value of inventories overstates or understates the actual inventories. Thus for correct imputation of GNP, inventory evaluation is required. A negative valuation adjustment is made for gains and a positive valuation adjustment is made for losses. But inventory valuation is a very difficult and cumbersome procedure.

(8) When we deduct capital depreciation from GNP, the resulting measure is NNP. Depreciation is a charge on profits which lowers national income. But the problem of estimating the current depreciated value of a piece of capital whose expected life is fifty years is very difficult. The usual practice on the part of firms is to base their depreciation provisions on the original cost of their assets. When prices of capital goods are changing, the annual depreciation provision will then measure the cost of using fixed assets for some fifty years (i.e., the time when the assets were bought) rather than the current cost of using them. Unlike inventories, a depreciation valuation adjustment is full of statistical difficulties, such as the age-composition of the whole capital stock, and changes in prices of capital goods every year since the assets were bought.

(9) Another difficulty in calculating national income is that of price changes which fail to keep stable the measuring rod of money for national income. When the price level in the country rises, the national income also shows an increase even though the production might have fallen. On the contrary, with a fall in price level, the national income shows a decline even though the production might have gone up. Thus due to price-changes the national income cannot be adequately measured. To solve this difficulty, the statisticians have introduced the concept of real national income, according to which the prices of the year in question are assessed in terms of prices of the base year. But this does not solve the problem of calculating the national income, because the index numbers which measure the price-changes are just rough estimates. Thus the national income data are misleading and unreliable.

(10) Moreover, the calculation of national income in terms of money is under-estimation of real national income. It does not include the leisure foregone in the process of production of a commodity. The incessant earned by two hours than the other would it be correct to some extent to say that the real income of the former has been understated. Thus national income does not take into consideration the actual cost of production of a commodity.

(11) In calculating national income, a good number of public services are also taken which cannot be estimated correctly. How should the police and military services be estimated? In the days of war, the forces are active, but during peace they rest in cantonments. Similarly, to estimate the contribution made to national income by profits earned on irrigation and power projects in terms of money is also a difficult problem.

13.7 Importance of National Income Estimates:

National Income indicates the trend of economy whether a country is progressing or stagnant. If the national income increases over years it means that the economy is growing:

1. When we make use of income method for computing national income, It will let us know how the national income is distributed among the different factors of production, the income inequalities can be made clear and a change in the policy can be made to reduce the same.

2. National income estimated from output method shows the contributions made by the various sectors of the economy.

3. When the National Income is divided by the population of the country we get the average per capital income which is an indicator of the standard of living of people .

4. Based on international comparison of per capita incomes, countries can be classified as developed and under developed.

5. The problems of less developed countries are clearly analyzed by making use of national income estimates.

6. National income estimates are essential for proper formulation and implementation of economic plans. Aggregate consumption, savings and capital formation are all required in economic planning.

13.8 National Income Accounts of India:

The government made the Central Statistical Organization responsible for the estimation of national income.

In India, National Income is estimated by making use of two methods (1) Output Method, and (2) Income Method. The entire economy is divided into three categories.

1. **CATEGORY 'A':** Agriculture, forests, logging, fisheries, mines, minerals, extraction, registered industries, construction are included in this category. The value of inputs is deducted from the gross - value of output from these different economic activities, to arrive at the net value of output. This is the output method.

2. **CATEGORY 'B':** Electricity, Railways, Airways, Roads, Transport and Communication, Banking, Insurance, Real Estate, Public Administration, defence are included in this category. Compensation paid to employees, interest, rent, profit of different firms are estimated. This is the income method.

3. **CATEGORY 'C':** Unorganized industrial sector, gas, water supply, unorganized roads, storage, business, hotels and restaurants, houses and other services are included in this category. The average productivity of worker is multiplied with the number of workers to arrive at net value of output. This is also output method.

13.9 The Measurement of National Income in India:

For national income estimates, the Government of India has adopted the concept of national income almost similar to the one generally used in the Western countries. In the Report of Committee on Distribution of Income and Levels of Living, it has been specified that an estimate of national income is a measure of the total output of commodities and services during a given period, reckoned without duplication. In India, thus national product is defined as the aggregate of material and non material goods, whereas in socialist countries like the U.S.S.R., national product is considered as an aggregate of material goods only. Because of this conceptual difference, India's national income data cannot directly be compared with those of the socialist nations.

Again, till independence, no systematic efforts were made in our country to estimate national income.

India's national income data are obtainable from the National Accounts Statistics (NAS) published by the Department of Statistics of the Central Statistical Organization (CSO), Annual Reports of Currency and Finance of the Reserve Bank of India, and Annual Economic Surveys published by the Ministry of Finance, Government of India.

Following the universal practice, national income is measured in India at current prices as well as in constant prices.

INDIAN METHOD OF MEASUREMENT OF NATIONAL INCOME: A combination of output and income method is used in India for the national income estimate as follows:

OUTPUT METHOD: It is adopted for estimating the income generated from agriculture, animal husbandry, forestry, fishery, mining and factory establishments.

In using the output method, the procedure of value added approach has been adopted.

In agriculture, the gross value of the output is obtained as follows:

(i) Total production of 64 agricultural commodities is estimated. The output of each crop is measured by multiplying the area sown by the average yield per hectare. By conducting crop - cutting experiments the average yield is estimated.

(ii) The total output of each commodity so obtain dis valued at market prices.

(iii) The aggregate of the values of total output of these 64 commodities is taken to measure the gross value of agricultural output.

(iv) The net value of the agricultural output is measured by making deductions for the cost of seed, manures and fertilizers, market charges, repairs and depreciation from the gross value.

Similarly, the gross values of the output of animal husbandry, forestry, fishery, mining and factory establishments are obtained by multiplying their estimates of total production with market prices. Net value of the output in these sectors is derived by making deductions for cost of materials used in the process of production and depreciation allowances, etc. from gross value of output.

Net value of each sector measured in this way indicates the net contribution of the sector to the national income.

INCOME METHOD: It is adopted for estimating the contributions of the remaining sectors, viz. Small enterprises, banking and insurance, commerce and transport, professions, liberal arts and domestic service, public authorities, house property and rest of the world (foreign sector).

The following procedure is used for obtaining the income generated in the small enterprise sector. The total number of persons engaged in different occupations is included under the small enterprise sector.

The average earnings per head are estimated by conducting a sample survey. The total income of the personal enterprise sector is obtained by multiplying the average earnings per head with the total number of persons engaged. To compute factor earning other than wages and salaries, an addition of 20 percent to the total money income is made. In this way the total income contributed by the small enterprise sector is arrived at. A similar procedure is adopted for obtaining the incomes generated in commerce and transport, professions, liberal arts and domestic services.

Regarding the income generated in the public sector, from the records of the public authorities, data of wages, salaries, dividends or surplus, etc., are obtained and aggregated.

For estimating the contribution of house property to the national income, the computed net rental of all houses in urban and rural areas is taken into account.

In this way, when contributions of all the different sectors are obtained, their aggregate value is measured, which gives the Net Domestic Product at factor cost.

When net indirect taxes are added to this, the Net Domestic Product at market prices is obtained.

Data on income from abroad (the rest of the world sector or foreign sector) are obtained from the account of the balance of payments of the country.

The net income from abroad is thus added to the Net Domestic Product at market prices to derive national income at market prices or current prices.

Owing to practical difficulties and other considerations, much of the economic activity is not reckined in national income estimates at all. Transactions worth lakhs of rupees are made ingambling, bootlegging, smuggling, prostitution, etc. These go unreported because they are illegal. Similarly, even in legal activities, transactions in black money are also not reported.

13.10 CONCLUSIONS:

National Income implies the income received by the people of a country during a particular time period. It means the aggregate value of all the final goods and services produced in the country during a particular year. The GNP, GNP, NNP, NDP, NNP at factor cost. Personal income and disposable income are the major concepts of national income. The components of national income are consumption, investment, government and net value of international trade. Output method, Income method and Expenditure method are the major methods to compute national income. In India we use output method and income method. But expenditure method is the most reliable method.

13.11 POINTS TO REMEMBER:

1. By estimating national income, we can understand the economic property of the country.
2. On the basis of concepts of national income, Government prepares its economic policies.
3. National income is a flow concept and national wealth is a stock.
4. Output method, Income method and Expenditure methods are the methods for computing national income.

13.12 MODEL QUESTIONS:

1. Explain the various methods of computation of National Income.
2. Explain the importance of National Income estimation. What are the difficulties in the computation of National Income?
3. What are the various concepts of National Income?
4. Definitions of National Income?
5. What are the factors that determine national income?
6. Distinguish between Gross Domestic Product and Gross National Product.
7. Components of National Income?
8. National income Estimation in India?

13.13 REFERENCES:

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