

UNIT-I

INTRODUCTION TO MANAGERIAL ECONOMICS

Imagine for a while that you have finished your studies and have joined as an engineer in a manufacturing organization. What do you do there? You plan to produce maximum quantity of goods of a given quality at a reasonable cost. On the other hand, if you are a sale manager, you have to sell a maximum amount of goods with minimum advertisement costs. In other words, you want to minimize your costs and maximize your returns and by doing so, you are practicing the principles of managerial economics.

Managers, in their day-to-day activities, are always confronted with several issues such as how much quantity is to be supplied; at what price; should the product be made internally; or whether it should be bought from outside; how much quantity is to be produced to make a given amount of profit and so on. Managerial economics provides us a basic insight into seeking solutions for managerial problems.

INTRODUCTION TO MANAGERIAL ECONOMICS:

Managerial economics, as the name itself implies, is an offshoot of two distinct disciplines: Economics and Management. In other words, it is necessary to understand what these disciplines are, at least in brief, to understand the nature and scope of managerial economics

MANAGEMENT

Management is the science and art of getting things done through people in formally organized groups. It is necessary that every organization be well managed to enable it to achieve its desired goals. Management includes a number of functions: *Planning, organizing, staffing, directing, and controlling*. The manager while directing the efforts of his staff *communicates* to them the goals, objectives, policies, and procedures; *coordinates* their efforts; *motivates* them to sustain their enthusiasm; and *leads* them to achieve the corporate goals.

ECONOMICS

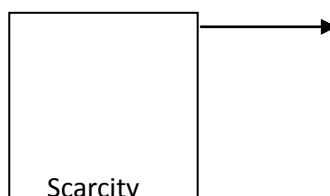
Economics is a study of human activity both at individual and national level. The economists of early age treated economics merely as the science of wealth. The reason for this is clear.

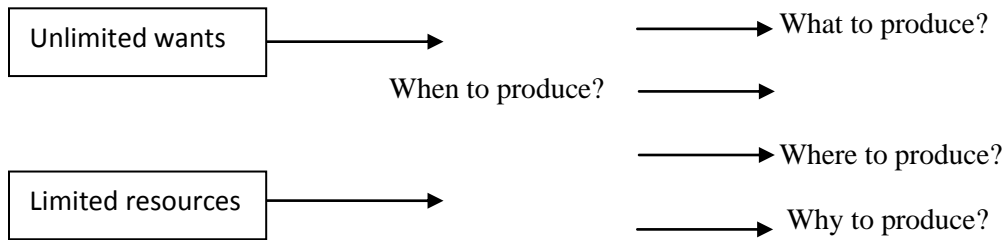
Every one of us is involved in efforts aimed at earning money and spending this money to satisfy our wants such as food, Clothing, shelter, and others. Such activities of earning and spending money are called “Economic activities”.

It was only during the eighteenth century that Adam Smith, the Father of Economics, defined economics as the study of nature and uses of national wealth’.

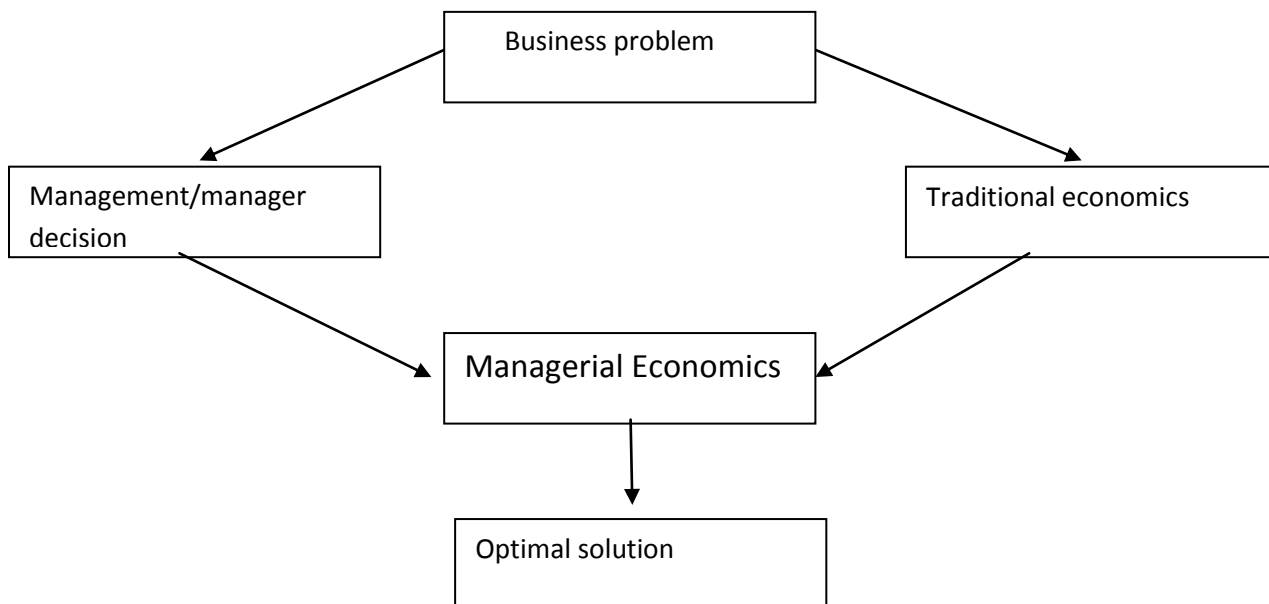
Dr. Alfred Marshall, one of the greatest economists of the nineteenth century, writes “Economics is a study of man’s actions in the ordinary business of life: it enquires how he gets his income and how he uses it”. Thus, it is one side, a study of wealth; and on the other, and more important side; it is the study of man. As Marshall observed, the chief aim of economics is to promote ‘human welfare’, but not wealth.

How to produce?





All the above questions will lead to a business problem. The science which gives optimal solution for the above business problems is managerial economic



Meaning & Definition:

Managerial Economics as a subject gained popularity in USA after the publication of the book “Managerial Economics” by Joel Dean in 1951.

Managerial Economics refers to the firm’s decision making process. It could be also interpreted as “Economics of Management” or “Economics of Management”. Managerial Economics is also called as “Industrial Economics” or “Business Economics”.

“Managerial Economics is the integration of economic theory with business practice for the purpose of facilitating decision making and forward planning by management”.

-----M. H. Spencer and Louis Siegelman

Managerial economics shows how economic analysis can be used in formulating police.

----- Joel Dean

Managerial economics is designed to provide a rigorous treatment of those aspects of economic theory and analysis that are most use for managerial decision analysis

----- J. L. Pappas and E. F. Brigham.

NATURE OF MANAGERIAL ECONOMICS

Further, it is assumed that the firm or the buyer acts in a rational manner (which normally does not happen). The buyer is carried away by the advertisements, brand loyalties, incentives and so on, and, therefore, the natural behavior of the consumer will be rational is not a realistic assumption. Unfortunately, there are no other alternatives to understand the subject other than by making such assumptions. This is because the behavior of a firm or a consumer is a complex phenomenon.

The other features of managerial economics are explained as below:

1. Close to microeconomics:

Managerial economics is concerned with finding the solutions for different managerial problems of a particular firm. Thus, it is more close to microeconomics. The study of an individual consumer or a firm is called microeconomics (also called the *Theory of Firm*). Microeconomics deals with behavior and problems of single individual and of micro organization. Managerial economics has its roots in microeconomics and it deals with the micro or individual enterprises.

2. Macroeconomics:

The study of 'aggregate' or total level of economic activity in a country is called *macroeconomics*. It studies the flow of economics resources or factors of production (such as land, labour, capital, organization and technology) from the resource owner to the business firms and then from the business firms to the households. It deals with total aggregates, for instance, total national income total employment, output and total investment. It studies the interrelations among various aggregates and examines their nature and behaviour, their determination and causes of fluctuations in the.

3. Normative statements:

A normative statement usually includes or implies the words 'ought' or 'should'. They reflect people's moral attitudes and are expressions of what a team of people ought to do. For instance, it deals with statements such as 'Government of India should open up the economy. Such statement are based on value judgments and express views of what is 'good' or 'bad', 'right' or 'wrong'. One problem with normative statements is that they cannot to verify by looking at the facts, because they mostly deal with the future. Disagreements about such statements are usually settled by voting on them.

4. Prescriptive actions:

Prescriptive action is goal oriented. Given a problem and the objectives of the firm, it suggests the course of action from the available alternatives for optimal solution. If does not merely mention the concept, it also explains whether the concept can be applied in a given context on not...

5. Offers scope to evaluate each alternative:

Managerial economics provides an opportunity to evaluate each alternative in terms of its costs and revenue. The managerial economist can decide which is the better alternative to maximize the profits for the firm.

6. Interdisciplinary:

The contents, tools and techniques of managerial economics are drawn from different subjects such as economics, management, mathematics, finance, marketing statistics, accountancy, psychology, organizational behavior, sociology and etc.

7. Managerial economic is descriptive:

It provides explanation description for the concepts of sales, profit etc... managerial economic provides brief description for the questions like how will be our sales, when can we reach breakeven and from what time we can get profits etc...

8. Managerial economic is application oriented:

It helps the managers in solving problems of different application areas like production. Pricing, promotion demand analysis etc.

SCOPE OF MANAGERIAL ECONOMICS:

The scope of managerial economics refers to its area of study. Managerial economics refers to its area of study. Managerial economics is help to find out the optimal solution for different managerial problems such as *Production, Capital Management Decisions, Pricing Decisions, Promotion Strategies, Demand Analyses and Forecasting, Resource Allocation Profit analysis ,Capital or investment analyses, Profit Expectation and Management*

The production department, marketing and sales department and the finance department usually handle these five types of decisions.



1. Production

It means inputs are transfer to output. Production analysis is in physical terms. While the cost analysis is in monetary terms cost concepts and classifications, cost-out-put relationships, economies and diseconomies of scale and production functions are some of the points constituting cost and production analysis.

2. Capital Management Decisions

Capital management decision carries lot of weight age in the organization. It deals with various options of capital employment and respective returns with that investment. A manager has to select optimal investment decision among the available options with the use of managerial economics using discounted cash flow techniques and non discounted can flow techniques.

3. Pricing Decisions

Pricing plays a vital role in the success of product as well as the organization. Managerial Economics provides different types of prices for products. Managerial Economics has a close watch on the factors affecting the pricing. How the organization has to price the items, when to do changes in pricing like questions will be answered by managerial Economics. Pricing decisions have been always within the preview of managerial economics. Pricing policies are merely a subset of broader class of managerial economic problems. Price theory helps to explain how prices are determined under different types of market conditions.

4. Promotion Strategies

Whatever many be the quality of product, if it was not reached to final customer, it cannot get success. So, proper promotion has to be done in all products and services. Managerial Economics guides managers how to promote and what is the sector they need to concentrate more and what should be the advertisement budget etc.

5. Demand Analyses and Forecasting:

A firm can survive only if it is able to the demand for its product at the right time, within the right quantity. Understanding the basic concepts of demand is essential for demand forecasting. Demand analysis should be a basic activity of the firm because many of the other activities of the firms depend upon the outcome of the demand forecast.

4. Resource Allocation:

Managerial Economics is the traditional economic theory that is concerned with the problem of optimum allocation of scarce resources. Marginal analysis is applied to the problem of determining the level of output, which maximizes profit. In this respect linear programming techniques has been used to solve optimization problems. In fact lines programming is one of the most practical and powerful managerial decision making tools currently available.

5. Profit analysis:

Profit making is the major goal of firms. There are several constraints here an account of competition from other products, changing input prices and changing business environment hence in spite of careful planning, there is always certain risk involved.

Managerial economics deals with techniques of averting of minimizing risks. Profit theory guides in the measurement and management of profit, in calculating the pure return on capital, besides future profit planning.

6. Capital or investment analyses:

Capital is the foundation of business. Lack of capital may result in small size of operations. Availability of capital from various sources like equity capital, institutional finance etc. may help to undertake large-scale operations. Hence efficient allocation and management of capital is one of the most important tasks of the managers. The major issues related to capital analysis are:

The choice of investment project

Evaluation of the efficiency of capital

Most efficient allocation of capital

Knowledge of capital theory can help very much in taking investment decisions. This involves, capital budgeting, feasibility studies, analysis of cost of capital etc.

7. Profit Expectation and Management

In addition to the all the above, sales of product takes place. Managerial economics tells us when can we reach the breakeven point and when can be we get profit. It also guides as in holders or reinvest in the same product.

These are the application areas where managerial economics can be used to take a decision.

MANAGERIAL ECONOMICS RELATIONSHIP WITH OTHER DISCIPLINES:

Many new subjects have evolved in recent years due to the interaction among basic disciplines. While there are many such new subjects in natural and social sciences, managerial economics can be taken as the best example of such a phenomenon among social sciences. Hence it is necessary to trace its roots and relationship with other disciplines.

1. Relationship with economics:

The relationship between managerial economics and economics theory may be viewed from the point of view of the two approaches to the subject Viz. Micro Economics and Macro Economics. Microeconomics is the study of the economic behavior of individuals, firms and other such micro organizations. Managerial economics is rooted in Micro Economic theory.

Managerial Economics makes use to several Micro Economic concepts such as marginal cost, marginal revenue, elasticity of demand as well as price theory and theories of market structure to name only a few. Macro theory on the other hand is the study of the economy as a whole. It deals with the analysis of national income, the level of employment, general price level, consumption and investment in the economy and even matters related to international trade, Money, public finance, etc.

2. Management theory and accounting:

Managerial economics has been influenced by the developments in management theory and accounting techniques. Accounting refers to the recording of pecuniary transactions of the firm in certain books. A proper knowledge of accounting techniques is very essential for the success of the firm because profit maximization is the major objective of the firm.

3. Managerial Economics and mathematics:

The use of mathematics is significant for managerial economics in view of its profit maximization goal long with optional use of resources. The major problem of the firm is how to minimize cost, how to maximize profit or how to optimize sales. Mathematical concepts and techniques are widely used in economic logic to solve these problems. Also mathematical methods help to estimate and predict the economic factors for decision making and forward planning.

4. Managerial Economics and Statistics:

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

5. Managerial Economics and Operations Research:

Taking effective decisions is the major concern of both managerial economics and operations research. The development of techniques and concepts such as linear programming, inventory models and game theory is due to the development of this new subject of operations research in the postwar years. Operations research is concerned with the complex problems arising out of the management of men, machines, materials and money.

Operations research provides a scientific model of the system and it helps managerial economists in the field of product development, material management, and inventory control, quality control, marketing and demand analysis. The varied tools of operations research are helpful to managerial economists in decision-making.

6. Managerial Economics and the theory of Decision-making:

The Theory of decision-making is a new field of knowledge grown in the second half of this century. Most of the economic theories explain a single goal for the consumer i.e., Profit maximization for the firm. But the theory of decision-making is developed to explain multiplicity of goals and lot of uncertainty.

As such this new branch of knowledge is useful to business firms, which have to take quick decision in the case of multiple goals. Viewed this way the theory of decision making is more practical and application oriented than the economic theories.

DEMAND ANALYSIS

INTRODUCTION & MEANING:

Demand in common parlance means the desire for an object. But in economics demand is something more than this. According to Stonier and Hague, "Demand in economics means demand backed up by enough money to

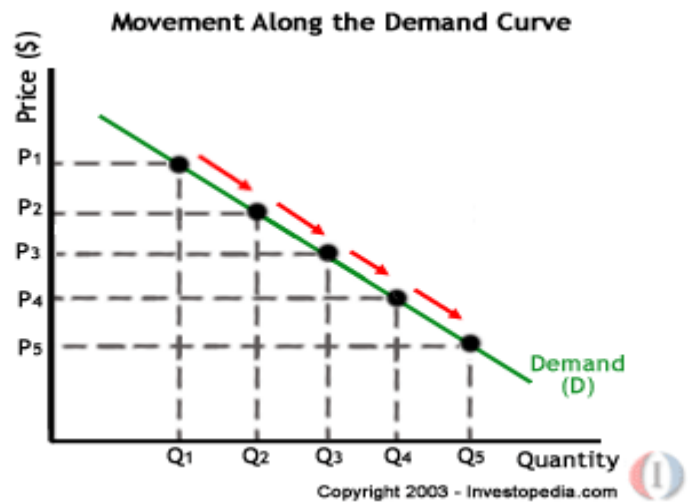
pay for the goods demanded”. This means that the demand becomes effective only if it is backed by the purchasing power in addition to this there must be willingness to buy a commodity.

Thus demand in economics means the desire backed by the willingness to buy a commodity and the purchasing power to pay. In the words of “Benham” “The demand for anything at a given price is the amount of it which will be bought per unit of time at that Price”. (Thus demand is always at a price for a definite quantity at a specified time.) Thus demand has three essentials – price, quantity demanded and time. Without these, demand has no significance in economics.

A product or services is said to have demand when three conditions are satisfied:

Desire + Ability to pay + Willingness to pay for it

| Price of Apple (In. Rs.) | Quantity Demanded |
|--------------------------|-------------------|
| 10 | 1 |
| 8 | 2 |
| 6 | 3 |
| 4 | 4 |
| 2 | 5 |



FACTORS AFFECTING DEMAND:

There are factors on which the demand for a commodity depends. These factors are economic, social as well as political factors. The effect of all the factors on the amount demanded for the commodity is called Demand Function.

These factors are as follows:

1. Price of the Commodity:

The most important factor-affecting amount demanded is the price of the commodity. The amount of a commodity demanded at a particular price is more properly called price demand. The relation between price and demand is called the Law of Demand. It is not only the existing price but also the expected changes in price, which affect demand

2. Income of the Consumer:

The second most important factor influencing demand is consumer income. In fact, we can establish a relation between the consumer income and the demand at different levels of income, price and other things remaining the same. The demand for a normal commodity goes up when income rises and falls down when income falls. But in case of Giffen goods the relationship is the opposite.

3. Prices of related goods:

The demand for a commodity is also affected by the changes in prices of the related goods also. Related goods can be of two types:

(i). Substitutes which can replace each other in use; for example, tea and coffee are substitutes. The change in price of a substitute has effect on a commodity's demand in the same direction in which price changes. The rise in price of coffee shall raise the demand for tea;

(ii). Complementary goods are those which are jointly demanded, such as pen and ink. In such cases complementary goods have opposite relationship between price of one commodity and the amount demanded for the other. If the price of pens goes up, their demand is less as a result of which the demand for ink is also less.

The price and demand go in opposite direction. The effect of changes in price of a commodity on amounts demanded of related commodities is called Cross Demand.

4. Tastes of the Consumers:

The amount demanded also depends on consumer's taste. Tastes include fashion, habit, customs, etc. A consumer's taste is also affected by advertisement. If the taste for a commodity goes up, its amount demanded is more even at the same price. This is called increase in demand. The opposite is called decrease in demand.

5. Population:

Increase in population increases demand for necessities of life. The composition of population also affects demand. Composition of population means the proportion of young and old and children as well as the ratio of men to women. A change in composition of population has an effect on the nature of demand for different commodities.

6. Expectations regarding the future:

If consumers expect changes in price of commodity in future, they will change the demand at present even when the present price remains the same. Similarly, if consumers expect their incomes to rise in the near future they may increase the demand for a commodity just now.

7. Advertisement expenditure:

Advertisement promotes sales. Other factors remaining same, with every increase in the advertisement expense there will be an increase in sales.

8. Demonstration effect:

Demand for luxury item is always great among the rich. This naturally influences the less affluent or the lower income group in the neighborhood. They also begin to buy luxury item to imitate their rich neighbors even when they do not have any genuine need for them

9. Climate and weather:

The climate of an area and the weather prevailing there has a decisive effect on consumer’s demand. In cold areas woolen cloth is demanded. During hot summer days, ice is very much in demand. On a rainy day, ice cream is not so much demanded.

LAW OF DEMAND

Law of demand shows the relation between price and quantity demanded of a commodity in the market. In the words of Marshall, “the amount demand increases with a fall in price and diminishes with a rise in price”.

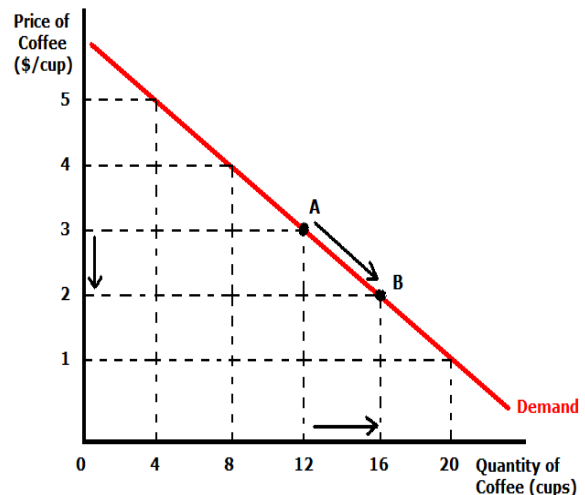
Generally, a person demands more at a lower price and less at a higher price. The relation of price to demand or sales is known in Economics as the Law of Demand.

The Law of Demand states that “higher the price, lower the demand and vice versa, other things remaining the same”.

The demand curve slopes downward from left to rights showing that more quantities are demanded at lower prices. That is, demand responds to price in the reverse direction. The reasons for the inverse relation between price and quantity demanded are the following:

Demand Schedule

| Price of Apple (In. Rs.) | Quantity Demanded |
|--------------------------|-------------------|
| 10 | 1 |
| 8 | 2 |
| 6 | 3 |
| 4 | 4 |
| 2 | 5 |



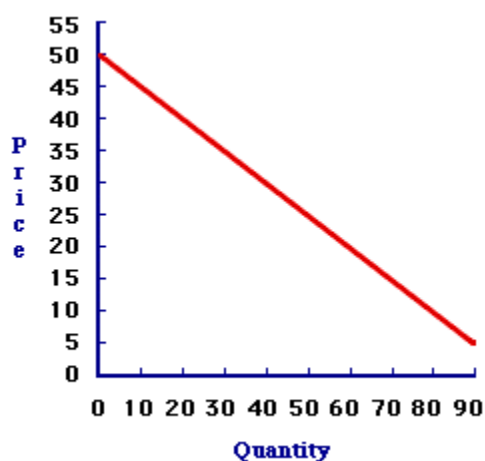
When the price falls from Rs. 10 to 8 quantity demand increases from 1 to 2. In the same way as price falls, quantity demand increases on the basis of the demand schedule we can draw the demand curve The demand curve DD shows the inverse relation between price and quantity demand of apple. It is downward sloping.

Income Effect:

A fall in price results in an increase in incomes of the consumer. As the price falls he can buy the same quantity as before with less amount of money. Thus he gains some money a part of which can be used for purchasing some more unit of the same commodity. This results in an increase in demand for that commodity. This results in an increase in demand for that commodity. When the price rises the consumers' income is reduced. This causes fall in the purchasing power of the consumer. Now he can buy lesser quantity with the same amount. Hence, we can observe a decrease in demand o that commodity.

Substitute Effect:

When the price of a commodity rises, the consumer may substitute that relatively costly commodity with less costly one if the substitutes are available. When tea becomes cheaper some people may shift their consumption from coffee to tea. Similarly if the price rises consumers, to some extent, may substitute the costly commodity with a comparatively low priced commodity of a similar kind.



Diminishing of Marginal Utility:

If a person consumes more units of the same commodity, he will get less and less satisfaction from the additional units i.e., the utility from each additional units goes on diminishing. The consumer will be ready to buy the additional unit only if it is available at a lower price. That is why consumers buy more at lower prices. He goes on buying till the marginal utility of the product is equal to its price.

Assumptions:

Law is demand is based on certain assumptions:

This is no change in consumers taste and preferences.

Income should remain constant.

Prices of other goods should not change.

There should be no substitute for the commodity

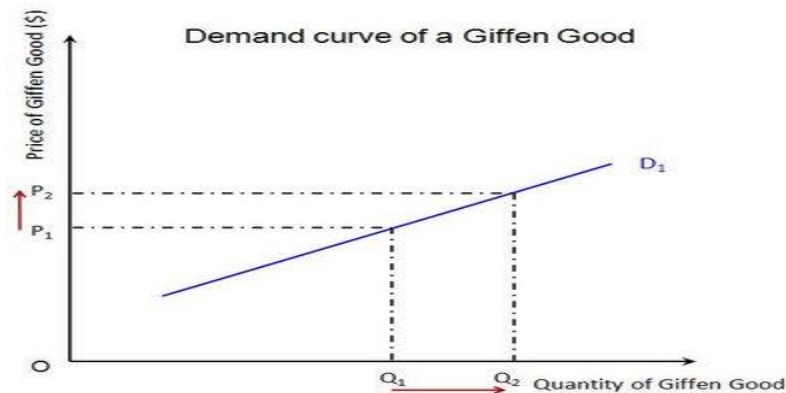
The commodity should not confer at any distinction

The demand for the commodity should be continuous

People should not expect any change in the price of the commodity

EXCEPTIONAL DEMAND CURVE

Sometimes the demand curve slopes upwards from left to right. In this case the demand curve has a positive slope.



When price increases from OP to Op_1 quantity demanded also increases from OQ_1 and vice versa. The reasons for exceptional demand curve are as follows.

1. Giffen paradox:

Robert giffen has observed an effect of goods which has increase in demand even if price raised and goods demand decreases even if price decreased. He named above the goods as

Superior goods

Inferior goods

Ex: if a person buy bread and meat daily, If the price of bread is decreased, he will not purchases more breads, for the balance of money he will purchases meat . Decrease in the price of an inferior goods does not increases its demand, dut increase the demand for superior goods

The Giffen good or inferior good is an exception to the law of demand. When the price of an inferior good falls, the poor will buy less and vice versa. For example, when the price of maize falls, the poor are willing to spend more on superior goods than on maize if the price of maize increases, he has to increase the quantity of money spent on it. Otherwise he will have to face starvation. Thus a fall in price is followed by reduction in quantity demanded and vice versa. "Giffen" first explained this and therefore it is called as Giffen's paradox.

2. Demonstration effect:

‘Veblan’ has explained the exceptional demand curve through his doctrine of conspicuous consumption. Rich people buy certain good because it gives social distinction or prestige for example diamonds are bought by the richer class for the prestige it possess. If the price of diamonds falls poor also will buy is hence they will not give prestige. Therefore, rich people may stop buying this commodity.

3. Ignorance:

Sometimes, the quality of the commodity is Judge by its price. Consumers think that the product is superior if the price is high. As such they buy more at a higher price.

4. Speculative effect:

If the price of the commodity is increasing the consumers will buy more of it because of the fear that it increase still further, Thus, an increase in price may not be accomplished by a decrease in demand.

5. Fear of shortage:

During the times of emergency of war People may expect shortage of a commodity. At that time, they may buy more at a higher price to keep stocks for the future.

6. Necessaries:

In the case of necessities like rice, vegetables etc. people buy more even at a higher price.

7. Goods don't have substitutes:

As a general tendency, demand has to be decrease with increase in price, but if any goods don't have substitutes, like salt and medicines, the demand will not get decreases. People will definitely buy as they don't have other alternative

8. Insignificant income spent on goods:

If consumers spend a small amount for any goods the price changes will not influence the demand for that sort of goods, as they spent insignificant income or match boxes they might not reduce buying even if price rises

9. Conspicuous consumption:

Goods like diamonds, pearls ect ,are purchased by rich and wealthy section of the society because the price of such goods are so high that they are beyond the reach of a common man .most of these goods are demand when their price go up very high

UNIT - II

ELASTICITY OF DEMAND

Elasticity of demand explains the relationship between a change in price and consequent change in amount demanded. “Marshall” introduced the concept of elasticity of demand. Elasticity of demand shows the extent of change in quantity demanded to a change in price.

In the words of “Marshall”, “The elasticity of demand in a market is great or small according as the amount demanded increases much or little for a given fall in the price and diminishes much or little for a given rise in Price”

Elastic demand: A small change in price may lead to a great change in quantity demanded. In this case, demand is elastic.

In-elastic demand: If a big change in price is followed by a small change in demanded then the demand is “inelastic”.

Proportionate change in the quantity demand of commodity

Elasticity = -----

Proportionate change in the factors of commodity

MEASUREMENT OF ELASTICITY OF DEMAND

- **Perfectly elastic demand**
- **Perfectly Inelastic Demand**
- **Relatively elastic demand**
- **Relatively in-elastic demand**
- **Unit elasticity of demand**

A. PERFECTLY ELASTIC DEMAND:

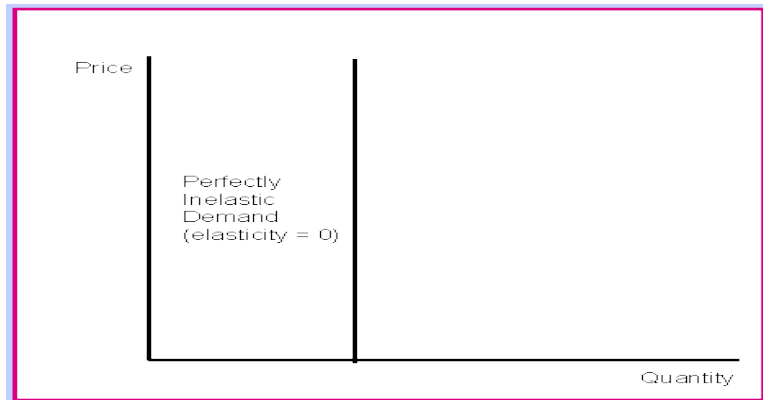


When small change in price leads to an infinitely large change in quantity demand, it is called perfectly or infinitely elastic demand. In this case $E = \infty$

The demand curve DD1 is horizontal straight line. It shows that at “OP” price any amount is demanded and if price increases, the consumer will not purchase the commodity.

B. PERFECTLY INELASTIC DEMAND

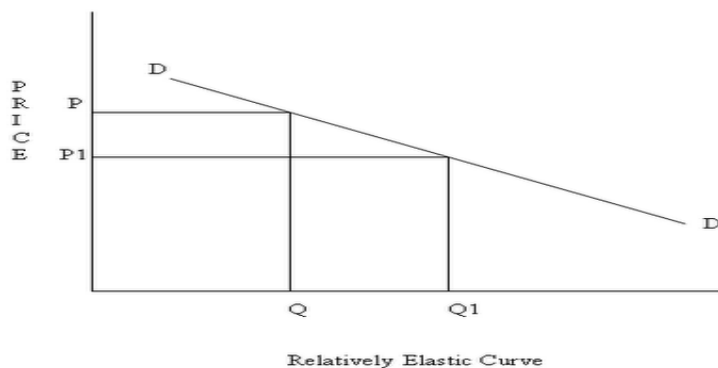
In this case, even a large change in price fails to bring about a change in quantity demanded.



When price increases from 'OP' to 'OP', the quantity demanded remains the same. In other words the response of demand to a change in Price is nil. In this case 'E'=0.

C. RELATIVELY ELASTIC DEMAND:

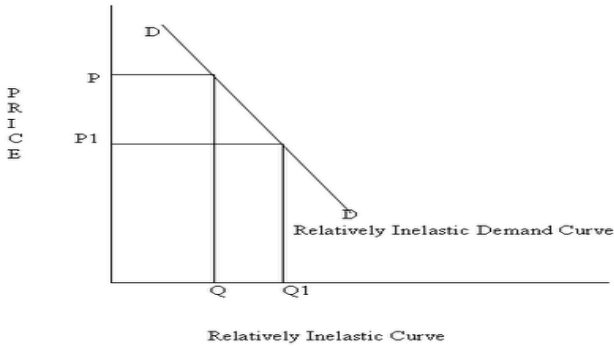
Demand changes more than proportionately to a change in price. i.e. a small change in price loads to a very big change in the quantity demanded. In this case $E > 1$. This demand curve will be flatter.



When price falls from 'OP' to 'OP1', amount demanded increase from "OQ" to "OQ1" which is larger than the change in price.

D. RELATIVELY IN-ELASTIC DEMAND.

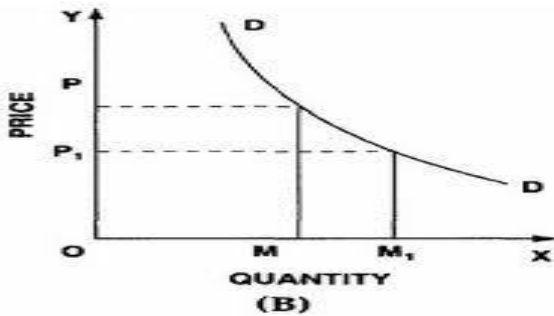
Quantity demanded changes less than proportional to a change in price. A large change in price leads to small change in amount demanded. Here $E < 1$. Demanded curve will be steeper.



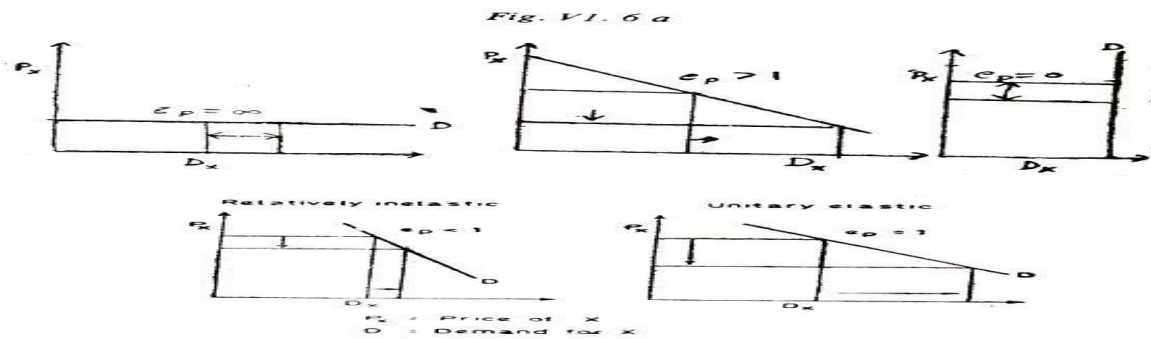
When price falls from “OP’ to ‘OP1 amount demanded increases from OQ to OQ1, which is smaller than the change in price.

E. UNIT ELASTICITY OF DEMAND:

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



When price falls from ‘OP’ to ‘OP1’ quantity demanded increases from ‘OM’ to ‘OM1’. Thus a change in price has resulted in an equal change in quantity demanded so price elasticity of demand is equal to unity.



TYPES OF ELASTICITY OF DEMAND:

There are three types of elasticity of demand:

1. Price elasticity of demand
2. Income elasticity of demand
3. Cross elasticity of demand
4. advertising elasticity of demand

1. PRICE ELASTICITY OF DEMAND:

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

Proportionate change in the quantity demand of commodity

Price elasticity = -----

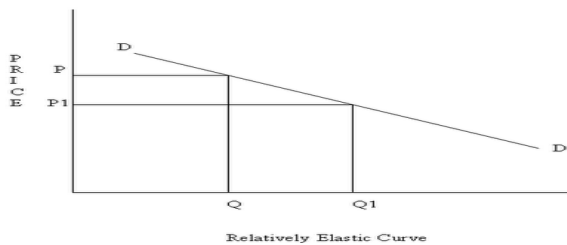
Proportionate change in the price of commodity

There are three cases of price elasticity of demand

- ✓ Price elasticity greater than unity
- ✓ Price elasticity less than unity
- ✓ Unit price elasticity

✓ **Price elasticity greater than unity:**

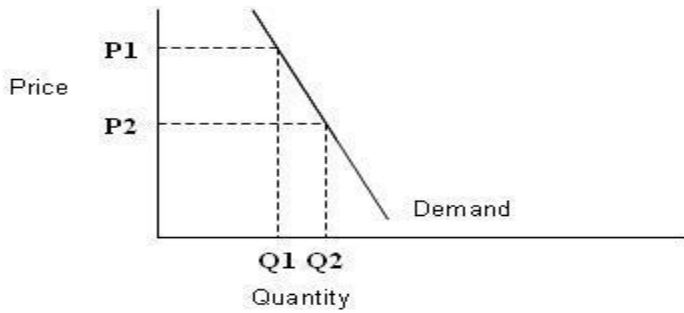
Demand changes more than proportionately to a change in price. i.e. a small change in price leads to a very big change in the quantity demanded. In this case $E > 1$. This demand curve will be flatter.



When price falls from ‘OP’ to ‘OP1’, amount demanded increase from “OQ” to “OQ1” which is larger than the change in price.

✓ **Price elasticity less than unity:**

Quantity demanded changes less than proportional to a change in price. A large change in price leads to small change in amount demanded. Here $E < 1$. Demand curve will be steeper.

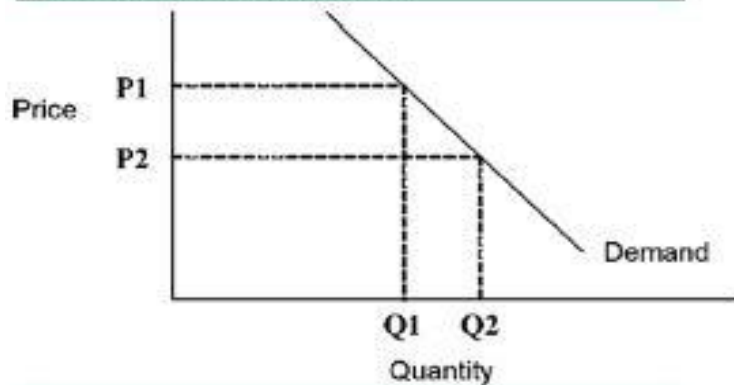


When price falls from “OP1’ to ‘OP2 amount demanded increases from OQ1 to OQ2, which is smaller than the change in price.

✓ **unit price elasticity:**

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

Figure 3. Unitary elasticity



2. INCOME ELASTICITY OF DEMAND:

Income elasticity of demand shows the change in quantity demanded as a result of a change in income. Income elasticity of demand may be stated in the form of a formula.

Proportionate change in the quantity demand of commodity

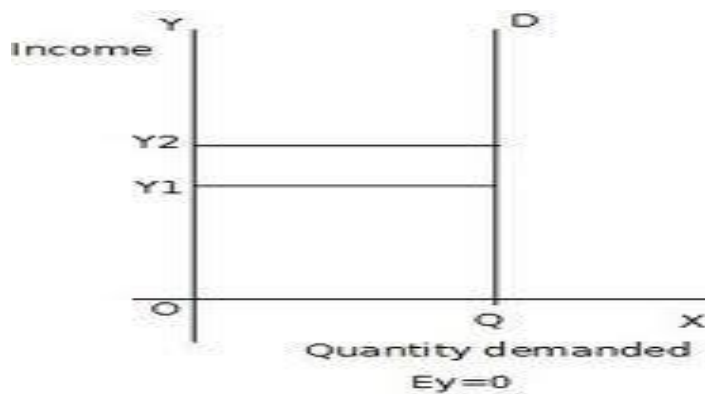
Income Elasticity = -----

Proportionate change in the income of the people

Income elasticity of demand can be classified in to five types.

A. Zero income elasticity:

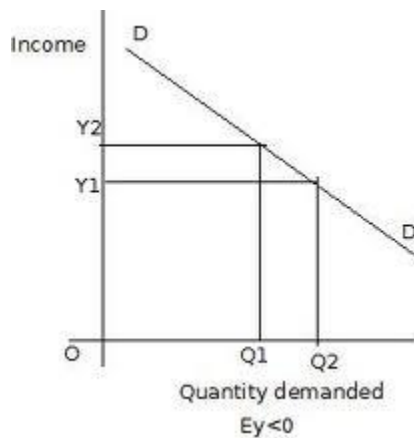
Quantity demanded remains the same, even though money income increases. Symbolically, it can be expressed as $E_y=0$. It can be depicted in the following way:



As income increases from OY to $OY1$, quantity demanded never changes.

B. Negative Income elasticity:

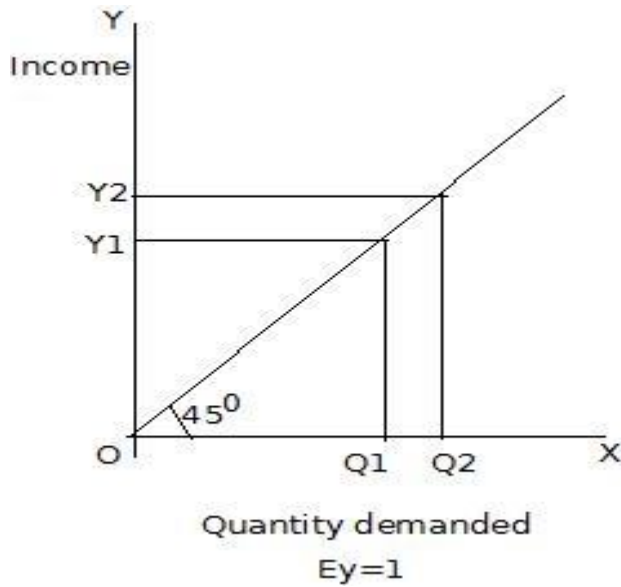
When income increases, quantity demanded falls. In this case, income elasticity of demand is negative. i.e., $E_y < 0$



When income increases from OY1 to OY2, demand falls from OQ1 to OQ2.

c. Unit income elasticity:

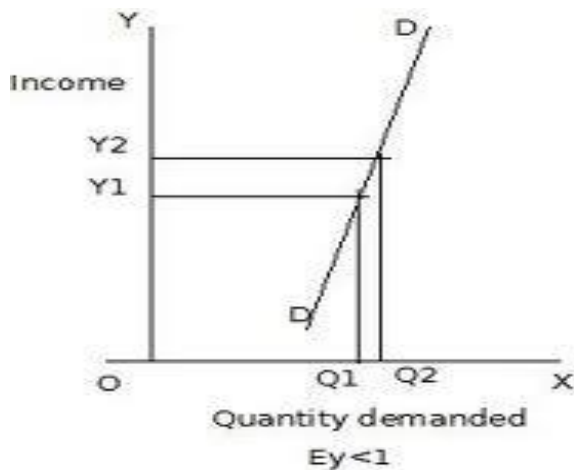
When an increase in income brings about a proportionate increase in quantity demanded, and then income elasticity of demand is equal to one. $E_y = 1$



When income increases from OY1 to OY2, Quantity demanded also increases from OQ1 to OQ2.

d. Income elasticity less than unity:

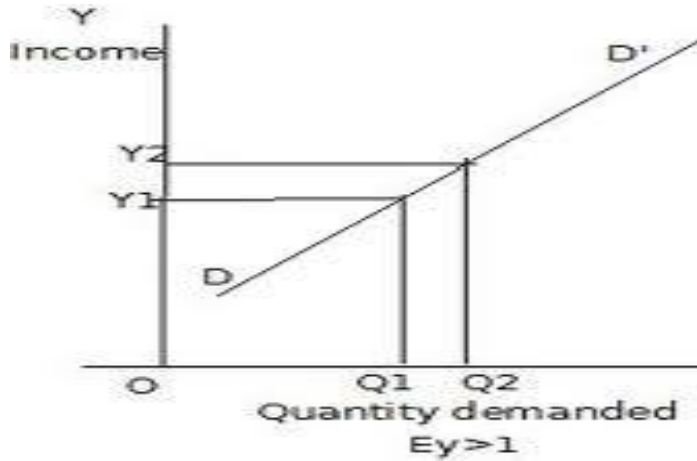
In this case, an increase in income brings about a more than proportionate increase in quantity demanded. Symbolically it can be written as $E_y < 1$.



It shows high-income elasticity of demand. When income increases from OY to OY1, Quantity demanded increases from OQ to OQ1.

E. Income elasticity greater than unity:

When income increases quantity demanded also increases but less than proportionately. In this case $E < 1$.



An increase in income from OY_1 to OY_2 , brings what an increase in quantity demanded from OQ_1 to OQ_2 , But the increase in quantity demanded is smaller than the increase in income. Hence, income elasticity of demand is less than one.

3. CROSS ELASTICITY OF DEMAND:

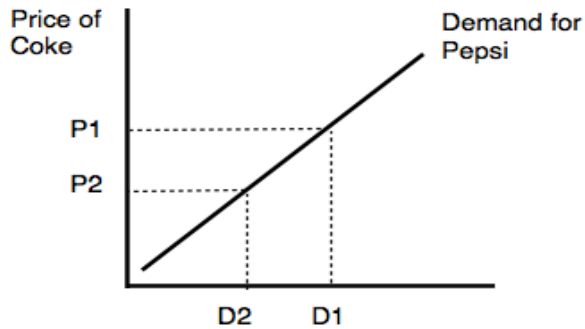
A change in the price of one commodity leads to a change in the quantity demanded of another commodity. This is called a cross elasticity of demand. The formula for cross elasticity of demand is:

Proportionate change in the quantity demand of commodity “X”

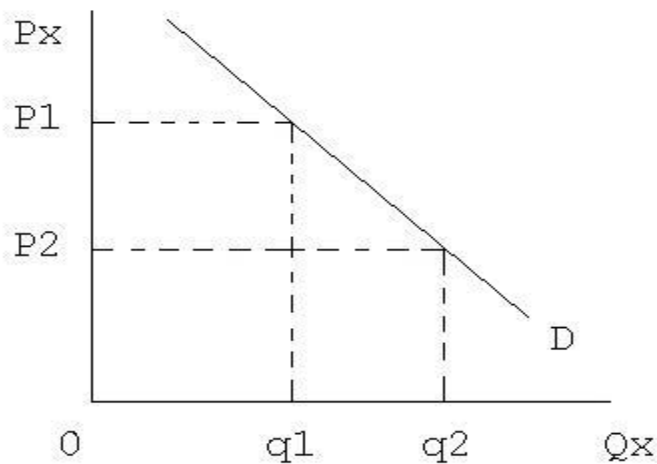
Cross elasticity =

Proportionate change in the price of commodity “Y”

A. In case of substitutes, cross elasticity of demand is positive. Eg: Coffee and Tea. When the price of coffee increases, Quantity demanded of tea increases. Both are substitutes.



B.In case of compliments, cross elasticity is negative. If increase in the price of one commodity leads to a decrease in the quantity demanded of another and vice versa.



When price of car goes up from OP to OP! the quantity demanded of petrol decreases from OQ1 to OQ2. The cross-demanded curve has negative slope.

4 ADVERTISING ELASTICITY OF DEMAND

It refers to increase in the sale revenue because of changes in the advertising expenditure. In other words there is a direct relationship between the amount of money spent on advertising and its impact on sales. It is always positive

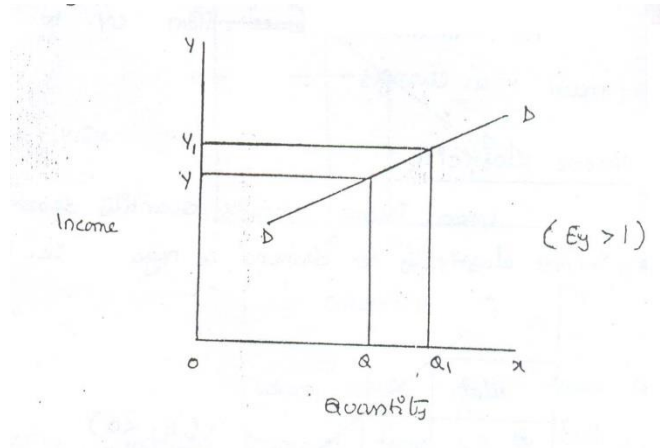
Proportionate change in the quantity demand of product “X”

Advertising elasticity = -----

Proportionate change in the advertising cost

Advertising elasticity greater than unity:

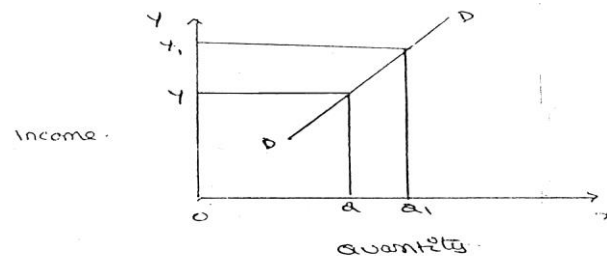
In this case, an increase in come brings about a more than proportionate increase in quantity demanded. Symbolically it can be written as $E_y > 1$.



It shows high-income elasticity of demand. When income increases from OY to OY1, Quantity demanded increases from OQ to OQ1.

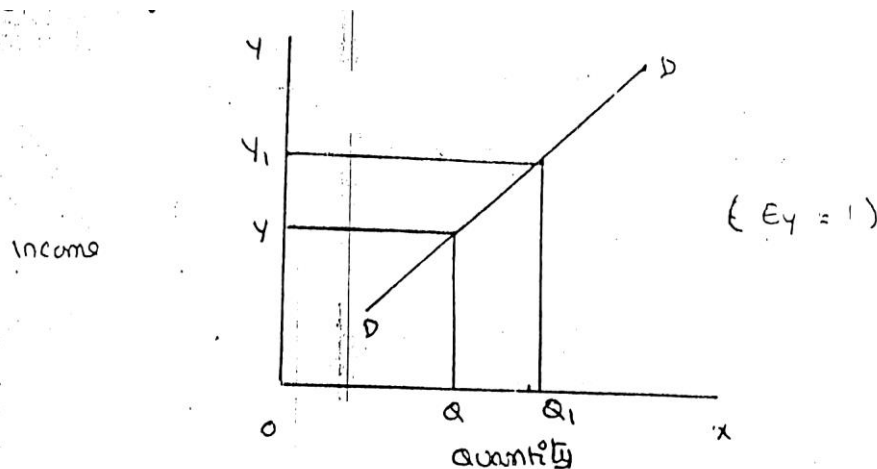
Advertising elasticity less than unity:

When income increases quantity demanded also increases but less than proportionately. In this case $E < 1$.



Unit advertising elasticity:

When an increase in income brings about a proportionate increase in quantity demanded, and then income elasticity of demand is equal to one. $E_y = 1$



FACTORS INFLUENCING THE ELASTICITY OF DEMAND

Elasticity of demand depends on many factors.

1. Nature of commodity:

Elasticity or in-elasticity of demand depends on the nature of the commodity i.e. whether a commodity is a necessity, comfort or luxury, normally; the demand for Necessaries like salt, rice etc is inelastic. On the other hand, the demand for comforts and luxuries is elastic.

2. Availability of substitutes:

Elasticity of demand depends on availability or non-availability of substitutes. In case of commodities, which have substitutes, demand is elastic, but in case of commodities, which have no substitutes, demand is inelastic.

3. Variety of uses:

If a commodity can be used for several purposes, then it will have elastic demand. i.e. electricity. On the other hand, demand is inelastic for commodities, which can be put to only one use.

4. Postponement of demand:

If the consumption of a commodity can be postponed, then it will have elastic demand. On the contrary, if the demand for a commodity cannot be postponed, then demand is inelastic. The demand for rice or medicine cannot be postponed, while the demand for Cycle or umbrella can be postponed.

5. Amount of money spent:

Elasticity of demand depends on the amount of money spent on the commodity. If the consumer spends a smaller amount for example a consumer spends a little amount on salt and matchboxes. Even when price of salt or matchbox goes up, demand will not fall. Therefore, demand is inelastic in case of clothing a consumer spends a large proportion of his income and an increase in price will reduce his demand for clothing. So the demand is elastic.

6. Time:

Elasticity of demand varies with time. Generally, demand is inelastic during short period and elastic during the long period. Demand is inelastic during short period because the consumers do not have enough time to know about the change in price. Even if they are aware of the price change, they may not immediately switch over to a new commodity, as they are accustomed to the old commodity.

7. Range of Prices:

Range of prices exerts an important influence on elasticity of demand. At a very high price, demand is inelastic because a slight fall in price will not induce the people buy more. Similarly at a low price also demand is inelastic. This is because at a low price all those who want to buy the commodity would have bought it and a further fall in price will not increase the demand. Therefore, elasticity is low at very high and very low prices.

IMPORTANCE OF ELASTICITY OF DEMAND:

The concept of elasticity of demand is of much practical importance.

1. Price fixation:

The manufacturer can decide the amount of price that can be fixed for his product based on the concept of elasticity. If there is no competition the manufacturer is free to fix his price. Where there is a competition it difficult to fix the price

2. Production:

Producers generally decide their production level on the basis of demand for the product. Hence elasticity of demand helps the producers to take correct decision regarding the level of output to be produced.

3. Distribution:

Elasticity of demand also helps in the determination of rewards for factors of production. For example, if the demand for labour is inelastic, trade unions will be successful in raising wages. It is applicable to other factors of production.

4. International Trade:

Elasticity of demand helps in finding out the terms of trade between two countries. Terms of trade refers to the rate at which domestic commodity is exchanged for foreign commodities. Terms of trade depends upon the elasticity of demand of the two countries for each other goods.

5. Public Finance:

Elasticity of demand helps the government in formulating tax policies. For example, for imposing tax on a commodity, the Finance Minister has to take into account the elasticity of demand.

6. Nationalization: The concept of elasticity of demand enables the government to decide about nationalization of industries.

7. Forecasting demand:

Income elasticity is used for forecasting demand for a product. The demand for the product can be forecasted at a given level. In other words, the impact of changing income level on the demand of the product can be assessed with the help of income elasticity.

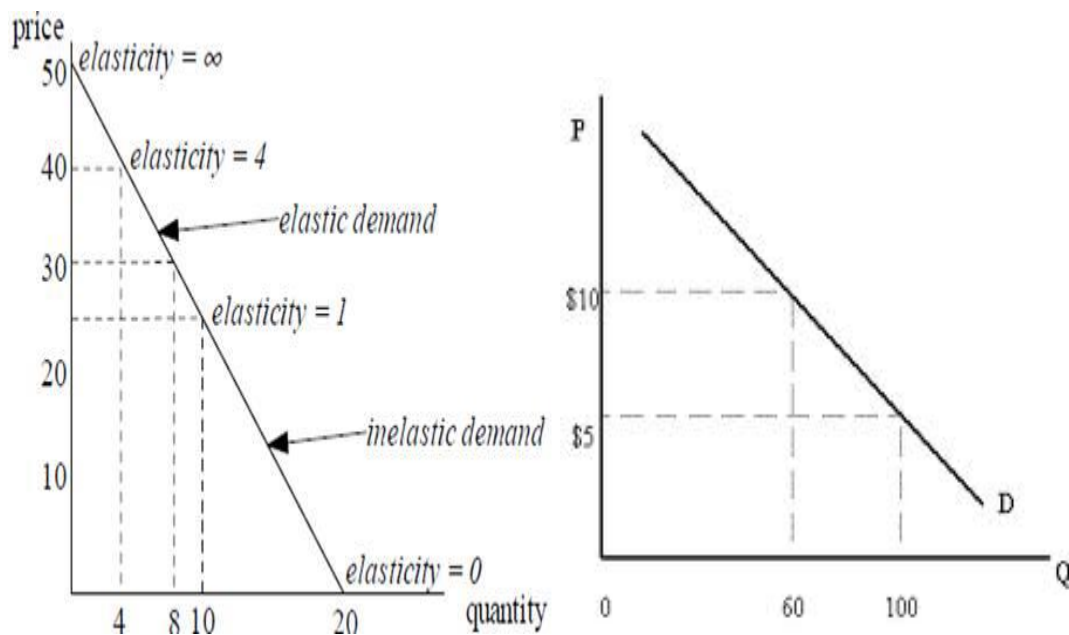
8. Planning the level of output and price:

The knowledge of price elasticity is very useful to producers. If the demand for the product is inelastic, a little higher price may be to him to get huge profits.

9. Public utilities:

The government uses the concept of elasticity in fixing charges for the public utility such as electricity, water, etc.

Point elasticity and arc elasticity



DEMAND FORECASTING

INTRODUCTION:

The information about the future is essential for both new firms and those planning to expand the scale of their production. Demand forecasting refers to an estimate of future demand for the product. Forecasting helps to assess the likely demand for products and services and to plan production accordingly

In recent times, forecasting plays an important role in business decision-making. Demand forecasting has an important influence on production planning. It is essential for a firm to produce the required quantities at the right time.

It is essential to distinguish between forecasts of demand and forecasts of sales. Sales forecast is important for estimating revenue cash requirements and expenses. Demand forecasts relate to production, inventory control, timing, reliability of forecast etc. However, there is not much difference between these two terms.

THE NEED FOR DEMAND FORECASTING

The importance of demand forecasting is paramount when either production or demand is uncertain. Where the supply is not in accordance with the demand, it results in the development of a black market or excessive prices.

Where there is a lot of competition, the entrepreneur has to estimate the demand for his production and services so that he can plan his material inputs, such as manpower, finances, advertising and other overheads.

TYPES OF DEMAND FORECASTING:

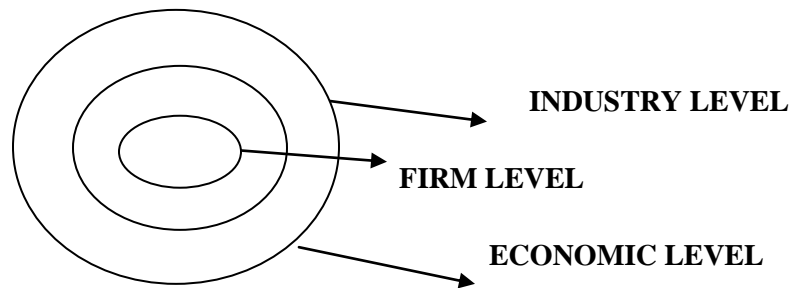
Based on the time span and planning requirements of business firms, demand forecasting can be classified in to

1. Short-term demand forecasting and
2. Long – term demand forecasting.

1. Short-term demand forecasting: Short-term demand forecasting is limited to short periods, usually for one year. It relates to policies regarding sales, purchase, price and finances. It refers to existing production capacity of the firm. Short-term forecasting is essential for formulating a suitable price policy. If the business people expect of rise in the prices of raw materials of shortages, they may buy early... Production may be undertaken based on expected sales and not on actual sales.

2. Long – term forecasting: In long-term forecasting, the businessmen should know about the long-term demand for the product. Planning of a new plant or expansion of an existing unit depends on long-term demand. Similarly a multi product firm must take into account the demand for different items. When forecasts are made covering long periods, the probability of error is high. It is very difficult to forecast the production, the trend of prices and the nature of competition.

FORECASTING LEVELS



Economic forecasting is concerned with the economics, it covers the whole economy. It is based on levels of income saving of the customers.

Industrial level forecasting is used for inter-industry comparisons and is being supplied by trade association or chamber of commerce.

Firm level forecasting relates to individual firm. Estimate the demand for product and services offered by a single firm.

Functional nature of demand

Higher volumes of sales can be realized with higher level of advertisements. However there could be some minimum value sales even when there are no advertisements on a large scale.

Degree of orientation

The forecasting in terms of total sales can be viewed as general forecasting whereas product and service wise forecasting refers to specific forecasting.

METHODS OF DEMAND FORECASTING

1. SURVEY METHOD

- (a) Census methods
- (b) Sample method

2. STATISTICAL METHODS

- 1. Trend Projection Methods

A) Moving Average Method

B) Exponential Smoothing

2. Barometric Techniques

3. Correlation and Regression Methods

3. OTHERS METHODS

(a) Expert Opinion

(B) Test Marketing

(C) Controlled Experiments

(D) Judgmental Approach

1. Survey method :

It is the most useful source of information would be the buyers themselves. It is better to draw list of all potential buyers, approach each buyers to ask how much he plans to buy of the given product at a given point of time. The survey of buyers can be conducted either by covering the whole populations or by selecting a sample group of buyers. Suppose there are 10000 buyers for a particular product.

If the company wishes to elicit the opinion of all the buyers, this method is called census or total enumeration methods. This methods is not only time consuming but also costly. The firm can select a group of buyers who can represent the whole populations this methods is called the sample method.

The survey method is considered more advantages in the following situations.

- (1) Where the product is new on the market for which no data previously exists
- (2) When the buyers are few and they are accessible
- (3) When the cost of reaching them is not significant
- (4) When the consumers stick to their intentions
- (5) When they are willing to disclose what they intend to do.

This method has certain disadvantages also. They are:

- (1) SURVEYS MAY BE EXPENSIVE;-Quite often the value of information supplied by the customer is not worth the cost of gathering it.
- (2) SAMPLE SIZE AND TIMING OF SURVEY;-Sample size should be large enough to yield meaningful

results on the desired aspects of study. Also the sample should be selected in such a way that it represents the whole population under the study. This increase the cost and also the time needed to undertake the analysis. The forecast results can deeply be influenced by the timing of the survey. For example, the number of residents preferring to stay in multi-stored apartments soon after the news about an earthquake may drastically come down when compared to the normal times.

Where the surveys are conducted by a group of firms, these costs can be shared.

(3) **METHODS OF SAMPLING;**-The survey should be based on appropriate method of sampling. The method so selected should be capable of providing result with no bias. For instance, the surveys conducted on the internet will have a built-in bias towards those in the higher socio-economic groups who have access to internet.

(4) **INCONSISTENT BUYING BEHAVIOUR;**-The buyers also may not express their intentions freely. Even the buyers do not act upon the way they express. Most of the buyers are susceptible to the advertisement strategies and are emotional when it really comes to the question of buying the product or services.

STATISTICAL METHODS

For forecasting the demand for goods and services in the long-run, statistical and mathematical methods are used considering the past data.

1. TREND PROJECTION METHODS;-These are generally based on analysis of past sales patterns. These methods dispense with the need for costly market research because the necessary information is often already available in company files in terms of different time periods, that is, a time series data.

(b)**MOVING AVERAGE METHOD;**-This method considers that the average of past events determine the future events. In other words, this method provides consistent results when the past events are consistent and unaffected by wide changes. As the name itself suggest, under this method, the average keeps on moving depending up on the number of years selected. Selection of the number of years is the decisive factor in this method. Moving averages get updated as new information flows in.

(c)**EXPONENTIAL SMOOTHING;**-This is a more popular technique used for short forecasts. This method is an improvement over moving averages method. Unlike in moving averages method, all time periods (ranging from the immediate past) here are given varying weights, that is, the values of the given variable in the recent time are given higher weights and the values of the given variable in the distant past are given relatively lower weights for further processing.

2. BAROMETRIC TECHNIQUES;-In other words, to forecast demand for a particular product or service,

use some other relevant indicator (Which is known as a barometer) of future demand. How the statistical data relating to the economy comes handy for this purpose is explained in the following examples.

3. CORRELATION AND REGRESSION METHODS;-Correlation and regression methods are statistical techniques. When the two variables tend to change together, then they are said to be correlated. The extent to which they are correlated is measured by correlation coefficient. Of these two variables, one is a dependent variable and the other is an independent. If the high values of one variable are associated with the high values of another, they are said to be positively correlated. For example, if the advertisement are positively correlated. Similarly, if the high values of one variable are associated with the low values of another, then they are said to be negatively correlated. For example, if the price of a product has come down; and as result, there is increase in its demand; the demand and the price are negatively correlated.

OTHERS METHODS

(a)EXPERT OPINION: Well informed person are called experts. Experts constitute another source of information. These people are generally the outside experts and they do not have any vested in the result of particular survey

An expert is good at forecasting and analyzing the future trends in a given product or service at a given level of technology. The service of an expert could be advantageously used when a firm uses general economic forecast or special industry forecast prepared outside the firm. It may be easy to administer this method where there are parameters clearly defined to make forecast. This act as guidelines

This method has certain advantages and disadvantages.

- Result of this method would be more reliable as the expert is unbiased, has no direct involvement in its primary activities
- Independent demand forecast can be made relatively quickly and cheaply
- Where there is different point of view among different experts, consensus can be arrived through an objective analysis. These experts can be asked to explain the reasons why the forecasts are out of line with consensus. These can be taken into account before taking the final decisions. Sorting out difference in estimates in this way is called DELPHI TECHNIQUE

(b)TEST MAREKETING: It is likely that opinions given by buyers, sales man or other experts may be, at times, misleading. This is the reason why of the manufacturers favor to test their product or service in a limited market as test –run before they launch their product nationwide. Based on the result of test marketing, valuable lessons can be learnt in how customer reacts to the given product and necessary changes can be introduced to

gain wider acceptability. To forecast the sales of a new product or the likely sales of an established product in a new channel of distribution or territory, it is customary to find test marketing in practice.

Automobiles companies maintain a panel of consumers who give feedback on style and design and specification of the new models. Accordingly these companies make changes, if any, and launch the product in the wider markets

The advantages of test marketing are:

- The acceptability of the product can be judged in a limited market
- Before this is too late, the correction can be made to the product design, if necessary. Thus, major atrophy, in term of failure, can be avoided.
- The customer psychology is more focused in this method and the product and service are aligned or redesigned accordingly to gain more customer acceptance

The following are the disadvantages of this method:

- It reveals the quality of product to the competitors before it is launched in the wider markets. The competitors may bring about the similar product or often misuse the result of test marketing against the given company.
- It is not always easy to select a representative audience or market.
- It may also be difficult to extrapolate the feedback received from such a test market, particularly where the chosen market is not fully representative.

(c)CONTROLLED EXPERIMENTS: It refers to such exercises of the major determinants of demand are manipulated to suit to the customer with taste and preferences, income groups, and such other. It is further factors remain same in this method in this method the product is introduced in different packages, different prices in different markets or same markets.

This method is still in the infancy stage and not much tried because of the following reasons:

- It is costly and consuming
- It involves elaborate model of studying different markets and different permutations and combinations that can push the product aggressively
- It fails in one market, it may affect other market also

(d)JUDGEMENTAL APPROACH: When none of the above methods are directly related to the given product or service, the management has no alternative other than using its own judgment. Even when the above

methods are used, the forecasting process is supplemented with the factor of judgment for the following reasons:

- Historical data for significantly long period is not available
- Turning points in terms of policies or procedure

UNIT - II

PRODUCTION & COST ANALYSIS

Introduction:

The production function expresses a functional relationship between physical inputs and physical outputs of a firm at any particular time period. The output is thus a function of inputs

Definition:

Samuelson defines the production function as "the technical relationship which reveals the maximum amount of output capable of being produced by each set of inputs". It is defined for a given state of technical knowledge.

Input-Output Relationship or Production Function

The inputs for any product or service are land, labor, capital, organization and technology. In other words, the production here is the function here of these five variable inputs. Mathematically, this is expressed as

$$Q=F (L1, L2, C, O, T)$$

L1 =land

L2 =labor

- C = capital
O = organization
T = technology

Where Q is the quantity of production, f explains the function, that is, the type of relation between inputs and outputs these inputs have been taken in conventional terms. In reality, materials also can be included in a set of inputs.

In a specific situation, some factors of production may be important and the relative importance of the factors depends upon the final product to be manufactured. For example, in the case of the software industry, land is not an input factor as significant as that in case of an agricultural product.

In the case of an agricultural product, increasing the other factors of production can increase the production; but beyond a point, increased output can be had only with increased use of agricultural land. Investment in land forms a significant portion of the total cost of production for output. With change in industry and the requirements, the production function also needs to be modified to suit to the situation.

Assumptions:

Production function has the following assumptions.

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

Production Function with One Variable Inputs and Laws Of Returns

Assume that a firm's production function consists of fixed quantities of all inputs (land, equipment, etc.) except labour which is a variable input when the firm expands output by employing more and more labour it alters the proportion between fixed and the variable inputs. The law can be stated as follows:

“When total output or production of a commodity is increased by adding units of a variable input while the quantities of other inputs are held constant, the increase in total production becomes after some point, smaller and smaller”.

Three stages of law:

The behaviors of the Output when the varying quantity of one factor is combined with a fixed quantity of the other can be divided into three distinct stages. The three stages can be better understood by following the table.

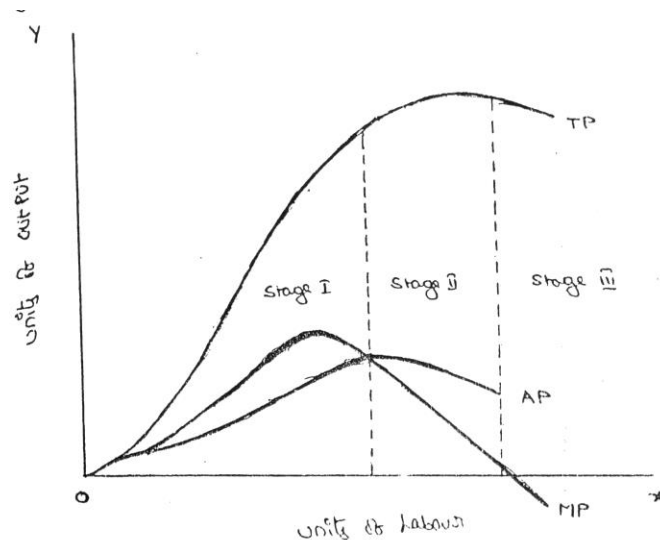
| Fixed factor | Variable factor (Labour) | Total product | Average Product | Marginal Product | |
|--------------|--------------------------|---------------|-----------------|------------------|-----------|
| 1 | 1 | 100 | 100 | - | Stage I |
| 1 | 2 | 220 | 120 | 120 | |
| 1 | 3 | 270 | 90 | 50 | |
| 1 | 4 | 300 | 75 | 30 | Stage II |
| 1 | 5 | 320 | 64 | 20 | |
| 1 | 6 | 330 | 55 | 10 | |
| 1 | 7 | 330 | 47 | 0 | Stage III |
| 1 | 8 | 320 | 40 | -10 | |

Above table reveals that both average product and marginal product increase in the beginning and then decline of the two marginal products drops off faster than average product.

Total product is maximum when the farmer employs 6th worker, nothing is produced by the 7th worker and its marginal productivity is zero, whereas marginal

product of 8th worker is '-10', by just creating credits 8th worker not only fails to make a positive contribution but leads to a fall in the total output.

Production function with one variable input and the remaining fixed inputs is illustrated as below



From the above graph the law of variable proportions operates in three stages. In the first stage, total product increases at an increasing rate. The marginal product in this stage increases at an increasing rate resulting in a greater increase in total product. The average product also increases. This stage continues up to the point where average product is equal to marginal product. The law of increasing returns is in operation at this stage.

The law of diminishing returns starts operating from the second stage onwards. At the second stage total product increases only at a diminishing rate. The average product

also declines. The second stage comes to an end where total product becomes maximum and marginal product becomes zero. The marginal product becomes negative in the third stage. So the total product also declines. The average product continues to decline

| STAGES | TP | MP | AP |
|--------|--|----------------------------|--------------------------------|
| 1 | Increase at an increasing rate | Increase reach the maximum | Increase and reach the maximum |
| 2 | Increase at Diminishing rate Till it reaches Maximum | Diminish equal to zero | Starts Diminish |
| 3 | Start declining | Because negative | Continues to decline |

Production Function with Two Variable Inputs and Laws of Returns

Let us consider a production process that requires two inputs, capital(c) and labour (L) to produce a given output (Q). There could be more than two inputs in a real life situation, but for a simple analysis, we restrict the number of inputs to two only. In other words, the production function based on two inputs can be expressed as:

$$Q=f(C,L)$$

Normally, both capital and labour are required to produce a product. To some extent, these two inputs can be substituted for each other. Hence the product may choose any combination of labour and capital that gives him the required number of

units of output. For any given level of output, a producer may hire both capital and labour, but he is free to choose any one combination of labour and capital out of several such combinations. The alternative combinations of labour and capital yielding a given level of output are such that if the use of one factor input is increased, that of another will decrease and vice versa.

ISOQUANTS:

The term Isoquants is derived from the words 'iso' and 'quant' – 'Iso' means equal and 'quant' implies quantity. Isoquant therefore, means equal quantity. A family of iso-product curves or isoquants or production difference curves can represent a production function with two variable inputs, which are substitutable for one another within limits.

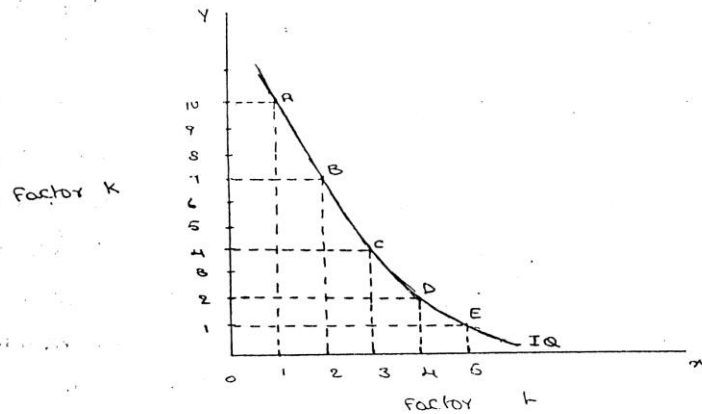
Isoquants are the curves, which represent the different combinations of inputs producing a particular quantity of output. Any combination on the isoquant represents the some level of output.

$$Q = f(L, K)$$

Where 'Q', the units of output is a function of the quantity of two inputs 'L' and 'K'.

Thus an isoquant shows all possible combinations of two inputs, which are capable of producing equal or a given level of output. Since each combination yields same output, the producer becomes indifferent towards these combinations.

| Combinations | Labour (units) | Capital (Units) | Output (quintals) |
|--------------|----------------|-----------------|-------------------|
| A | 1 | 10 | 50 |
| B | 2 | 7 | 50 |
| C | 3 | 4 | 50 |
| D | 4 | 4 | 50 |
| E | 5 | 1 | 50 |



FEATURES OF AN ISOQUANT

(1).**DOWNWARD SLOPING:-**Isoquants are downward sloping curves because, if one input increases, the other one reduces. There is no question of increase in both the inputs to yield a given output.

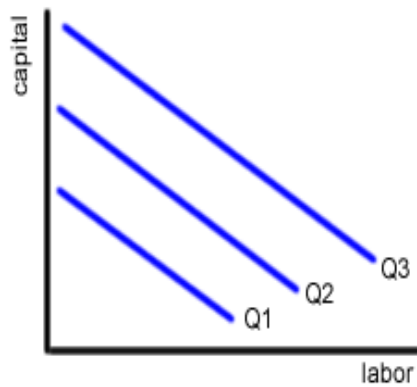
A degree of substitution is assumed between the factors of production. In other words, an isoquant cannot be increasing, as increase in both the inputs does not yield same level of output. If it is constant, it means that the output remains constant though the use of one of the factors is increasing, which is not true, isoquants slope from left to right.

(2).**CONVEX TO ORIGIN:-**Isoquants are convex to the origin. It is because the input factors are not perfect substitutes. One input factors were perfect substituted by other input factor in a 'diminishing marginal rate'. If the input factors were perfect substitutes,

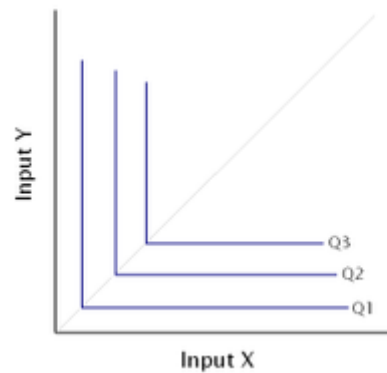
the isoquant would be a falling straight line. When the inputs are used in fixed proportion, and substitution of one input for the other cannot take place, the isoquant will be L shaped.

(3).**DO NOT INTERSECT**:-Two isoproducts do not intersect with each other. It is because, each of these denote a particular level of output. If the manufacturer wants to operate at a higher level of output, he has to switch over to another isoquant with a higher level of output and vice versa.

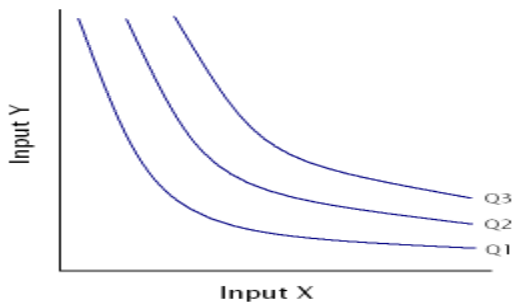
(4).**DO NOT TOUCH AXES**:-The isoquant touches neither x-axis nor y-axis, as both inputs are required to produce a given product.



isoquant perfect substitute



isoquant not perfect substitute



It showing different volume of output

ISO COST

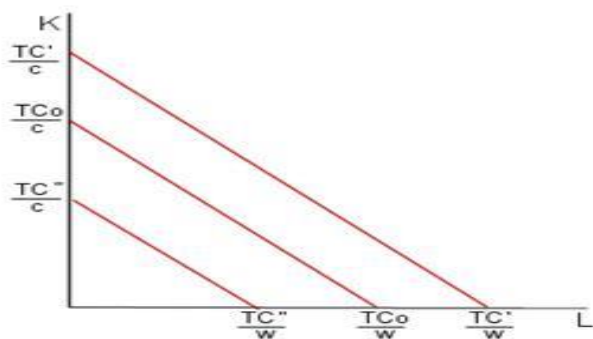
Definition:

A firm can produce a given level of output using efficiently different combinations of two inputs. For choosing efficient combination of the inputs, the producer selects that combination of factors which has the lower cost of production. The information about the cost can be obtained from the *isocost lines*.

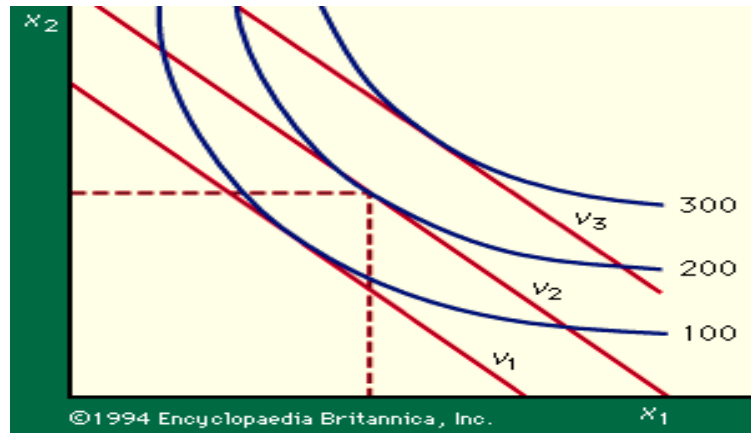
Explanation:

An isocost line is also called *outlay line or price line or factor cost line*. An isocost line shows all the combinations of labor and capital that are available for a given total cost to-the producer..

In economics, the isocost is the set of combinations of goods that have the same total cost; this can be represented by a curve on a graph. In economics an `isocost` line shows all combinations of inputs which cost the same total amount



Isoquant and Isocost



Marginal rate of technical substitution

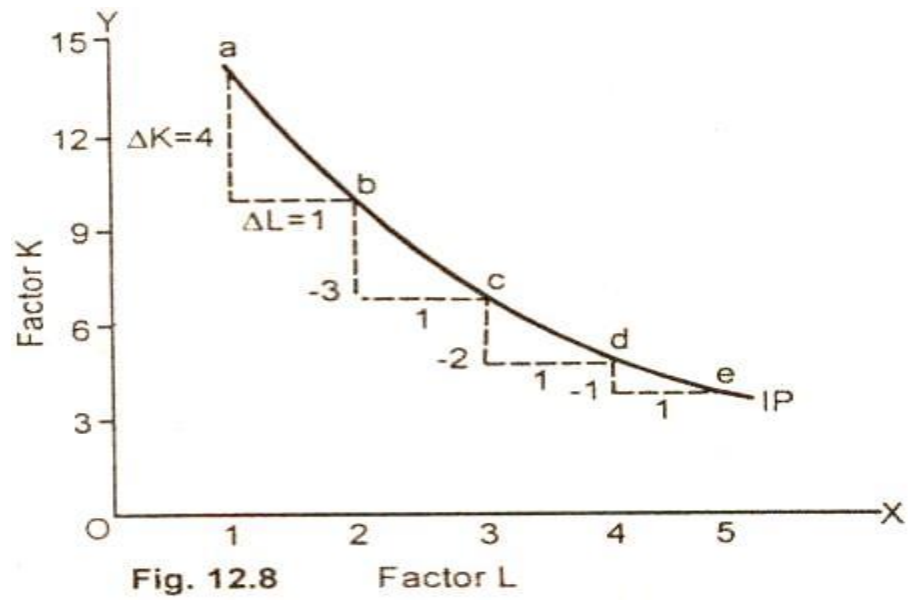
In economic theory, the **Marginal Rate of Technical Substitution (MRTS)** - or **Technical Rate of Substitution (TRS)** - is the amount by which the quantity of one input has to be reduced ($-\Delta x_2$) when one extra unit of another input is used ($\Delta x_1 = 1$), so that output remains constant ($y = \bar{y}$).

$$MRTS(x_1, x_2) = -\frac{\Delta x_1}{\Delta x_2} = \frac{MP_2}{MP_1}$$

where MP_1 and MP_2 are the marginal products of input 1 and input 2, respectively, and $MRTS(x_1, x_2)$ is **Marginal Rate of Technical Substitution** of the input x_1 for x_2 . Along an isoquant, the MRTS shows the rate at which one input (e.g. capital or labor) may be substituted for another, while maintaining the same level of output. The MRTS can also be seen as the slope of an isoquant at the point in question.

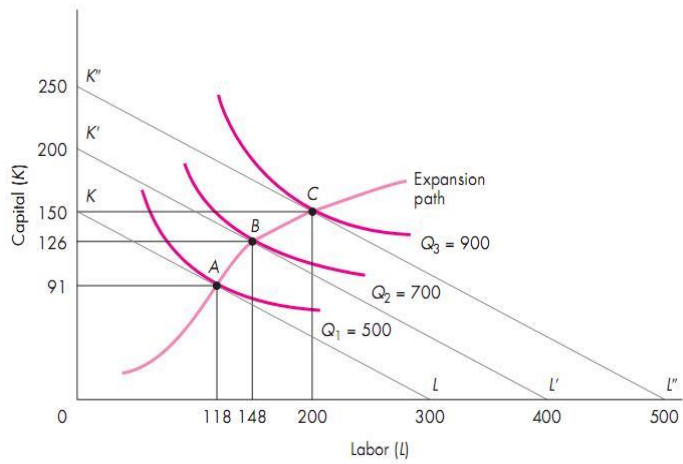
| Combinations | Labour (units) | Capital (Units) | Output (quintals) | MRTS |
|--------------|----------------|-----------------|-------------------|------|
| A | 20 | 1 | 50 | |
| B | 15 | 2 | 50 | 5:1 |
| C | 11 | 3 | 50 | 4:1 |
| D | 8 | 4 | 50 | 3:1 |
| E | 6 | 5 | 50 | 2:1 |

| | | | | |
|---|---|---|----|-----|
| F | 5 | 6 | 50 | 1:1 |
|---|---|---|----|-----|



Least cost combination of inputs

FIGURE 9.6
An Expansion Path



Cobb-Douglas production function:

Production function of the linear homogenous type is invented by and first tested by C. W. Cobb and P. H. Douglas in 1899 to 1922. This famous statistical production function is known as Cobb-Douglas production function. Originally the function is applied on the empirical study of the American manufacturing industry. Cobb – Douglas production function takes the following mathematical form.

$$Y = (bK^x L^{1-x})$$

Where Y=output k=Capital L=Labour

The production function shows that one percent change in labour, capital remaining the same is associated with a 0.75 %change in output. One percent change in capital, labour remaining the same, is associated with a 0.25 %change in output.

Assumptions:

It has the following assumptions

1. The function assumes that output is the function of two factors viz. capital and labour.
2. It is a linear homogenous production function of the first degree
3. The function assumes that the logarithm of the total output of the economy is a linear function of the logarithms of the labour force and capital stock.
4. There are constant returns to scale
5. All inputs are homogenous(same)

RETURNS TO SCALE

Another important attribute of production function is how output responds in the long run to changes in the scale of the firm i.e. when all inputs are increased in the same proportion (by say 10%), how does output change.

Clearly, there are 3 possibilities. If output increases by more than an increase in inputs (i.e. by more than 10%), then the situation is one of **increasing returns to scale (IRS)**.

If output increases by less than the increase in inputs, then it is a case of **decreasing returns to scale (DRS)**.

Lastly, output may increase by exactly the same proportion as inputs. For example a doubling of inputs may

Lead to a doubling of output. This is a case of **constant returns to scale (CRS)**.

| Capital (Units) | Labour (units) | % increase in both inputs | Output (quintals) | % increase in both output | Law applications |
|-----------------|----------------|---------------------------|-------------------|---------------------------|------------------|
| 1 | 3 | | 50 | | |
| A2 | 6 | 100 | 120 | 140 | increase |
| 4 | 12 | 100 | 240 | 100 | constant |
| 8 | 24 | 100 | 360 | 50 | decrease |

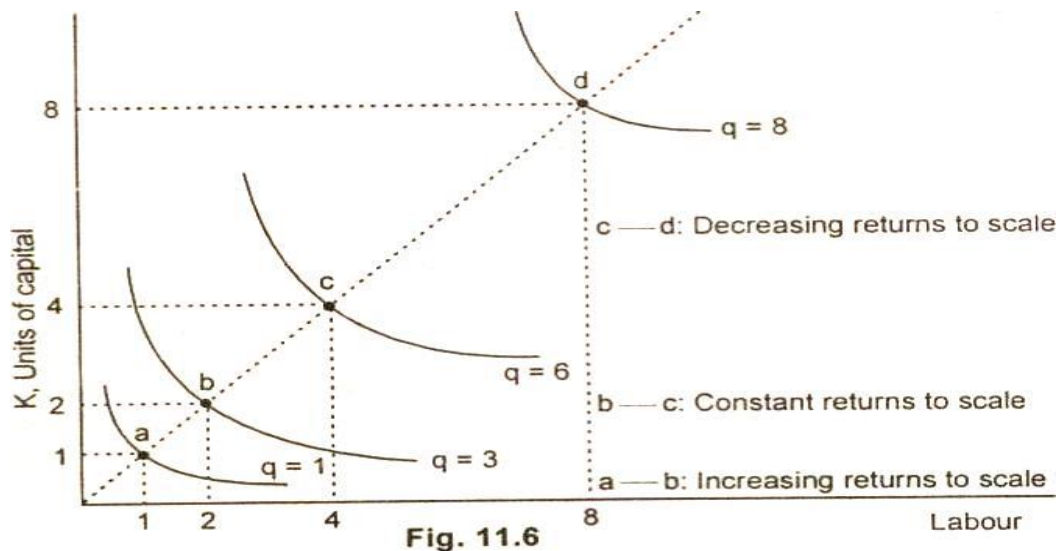


Fig. 11.6

ECONOMIES OF SCALE

The economies of scale result because of increase in the scale of production. Marshal divides the economies of scale into two groups:

Internal economies

External; economies

Internal economies:

It refers to the economies in production cost which accrue to the firm alone when it expands its output. The internal economies occur as results of increase in the scale of production.

The internal economies divide into following type:

1. Managerial economies :

As the firm expands the firm needs qualified managerial personnel to handle each of its functions such as marketing, finance, etc. Functional specialisation ensures minimum wastage and lowers the cost of production in the long run.

2. Commercial economies

The transactions of buying and selling raw material and other operating supplies such as spares and so on. There could be cheaper saving in the procurement, transportation and storage costs. This will lead to lower cost and increase profits.

3. Financial economies

There could be cheaper credit facilities from the financial institution to meet the capital expenditure or working capital requirements of a large firm to give security to financial institutions.

4. Technical economies

Increase in the scale of production follows when there is sophisticated technology available and the firm is in a position to hire qualified technology manpower to make use of it.

5. Marketing economies

As the firm grows larger and larger it can afford to maintain a full-fledged marketing department independently to handle the issues related to design of customer, promotion, marketing staff.

6. Risk bearing economies

As there is growth in size of firm there is increase in the risk also. Sharing in the risk with the insurance companies is the first priority for any firm. The firm insures it

machinery and other assets against the fire theft ect.the lager firm can spread their risk so that they do not keep all their eggs in one basket.

7. Economies of research and development

Large organizations such as dr.reddy labs,HCL, ect bring out several innovative products.

External economies

It refers to the entire firm in the industry, because of growth of the on industry as a whole or because of growth of industry.

1. Economies concentration

Because all firm are located at one place ,it is likely that there is better infrastructure in term of approach roads, tans potation ect

2. Economies of R&D

The entire firm can pool resource together to finance research and development activity and thus shares benefits of research.

3. Economies of welfare

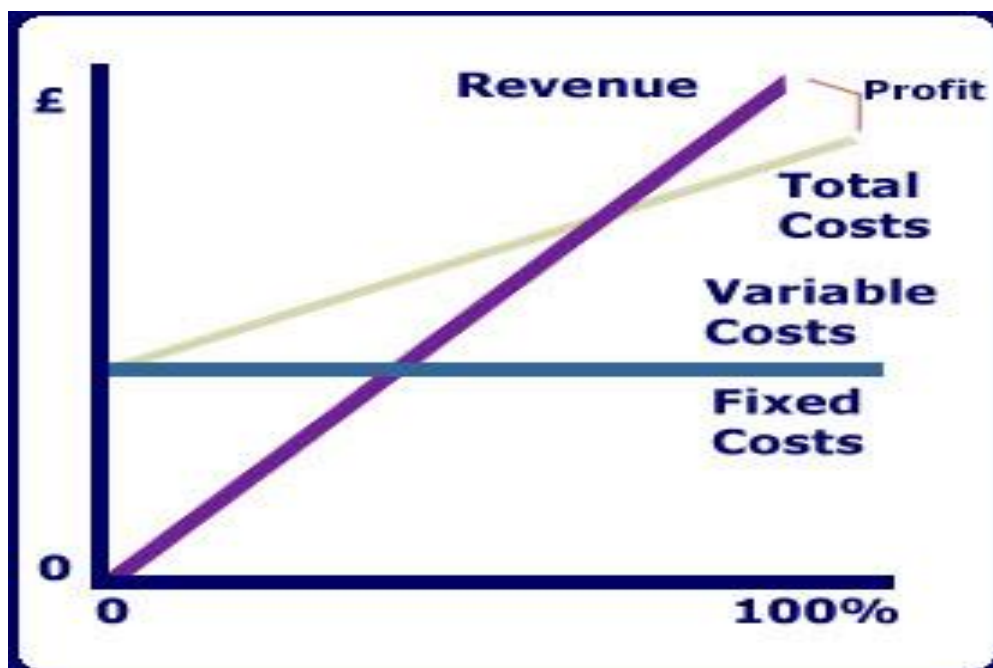
There could be common facility such as canteen, industryhousing, community halls,ect which can be used in common by the employee in the whole industry.

Production may be carried on a small scale or o a large scale by a firm. When a firm expands its size of production by increasing all the factors, it secures certain advantages known as economies of production. Marshall has classified these economies of large-scale production into internal economies and external economies.

Internal economies are those, which are opened to a single factory or a single firm independently of the action of other firms. They result from an increase in the scale of output of a firm and cannot be achieved unless output increases.

BREAKEVEN ANALYSIS

The study of cost-volume-profit relationship is often referred as BEA. The term BEA is interpreted in two senses. In its narrow sense, it is concerned with finding out BEP; BEP is the point at which total revenue is equal to total cost. It is the point of no profit, no loss. In its broad determine the probable profit at any level of production



1. **Fixed cost:** Expenses that do not vary with the volume of production are known as fixed expenses. Eg. Manager's salary, rent and taxes, insurance etc. It should be noted that fixed changes are fixed only within a certain range of plant capacity. The concept of fixed overhead is most useful in formulating a price fixing policy. Fixed cost per unit is not fixed.
2. **Variable Cost:** Expenses that vary almost in direct proportion to the volume of production of sales are called variable expenses. Eg. Electric power and fuel, packing materials consumable stores. It should be noted that variable cost per unit is fixed.
3. **Contribution:** Contribution is the difference between sales and variable costs and it contributed towards fixed costs and profit. It helps in sales and pricing policies and measuring the profitability of different proposals. Contribution is a sure test to decide whether a product is worthwhile to be continued among different products.

$$\text{Contribution} = \text{Sales} - \text{Variable cost}$$

$$\text{Contribution} = \text{Fixed Cost} + \text{Profit.}$$

4. **Margin of safety:** Margin of safety is the excess of sales over the break even sales. It can be expressed in absolute sales amount or in percentage. It indicates the extent to which the sales can be reduced without resulting in loss. A large margin of safety indicates the soundness of the business. The formula for the margin of safety is:

$$\text{Present sales} - \text{Break even sales} \quad \text{or} \quad \frac{\text{Profit}}{\text{P. V. ratio}}$$

5. **Break – Even- Point:** If we divide the term into three words, then it does not require further explanation.

Break-divide

Even-equal

Point-place or position

Break Even Point refers to the point where total cost is equal to total revenue. It is a point of no profit, no loss. This is also a minimum point of no profit, no loss. This is also a minimum point of production where total costs are recovered. If sales go up beyond the Break Even Point, organization makes a profit. If they come down, a loss is incurred.

1. Break Even point (Units) = $\frac{\text{Fixed Expenses}}{\text{Contribution per unit}}$
2. Break Even point (In Rupees) = $\frac{\text{Fixed expenses}}{\text{Contribution}}$

Merits:

1. Information provided by the Break Even Chart can be understood more easily than those contained in the profit and Loss Account and the cost statement.
2. Break Even Chart discloses the relationship between cost, volume and profit. It reveals how changes in profit. So, it helps management in decision-making.
3. It is very useful for forecasting costs and profits long term planning and growth
4. The chart discloses profits at various levels of production.
5. It serves as a useful tool for cost control.
6. It can also be used to study the comparative plant efficiencies of the industry.
7. Analytical Break-even chart present the different elements, in the costs – direct material, direct labour, fixed and variable overheads.

Demerits:

1. Break-even chart presents only cost volume profits. It ignores other considerations such as capital amount, marketing aspects and effect of government policy etc., which are necessary in decision making.
2. It is assumed that sales, total cost and fixed cost can be represented as straight lines. In actual practice, this may not be so.
3. It assumes that profit is a function of output. This is not always true. The firm may increase the profit without increasing its output.
4. A major draw back of BEC is its inability to handle production and sale of multiple products.
5. It is difficult to handle selling costs such as advertisement and sale promotion in BEC.
6. It ignores economics of scale in production.
7. Fixed costs do not remain constant in the long run.
8. Semi-variable costs are completely ignored.
9. It assumes production is equal to sale. It is not always true because generally there may be opening stock.
10. When production increases variable cost per unit may not remain constant but may reduce on account of bulk buying etc.

(A)ActualCost

Actual cost is defined as the cost or expenditure which a firm incurs for producing or acquiring a good or service. The actual costs or expenditures are recorded in the books of accounts of a business unit. Actual costs are also called as "Outlay Costs" or "AbsoluteCosts" or "AcquisitionCosts".

Examples: Costofrawmaterials,WageBilletec.

Opportunity Cost

Opportunity cost is concerned with the cost of forgone opportunities/alternatives. In other words, it is the return from the second best use of the firm's resources which the firm forgoes in order to avail of the return from the best use of the resources. It can also be said as the comparison between the policy that was chosen and the policy that was rejected. The concept of opportunity cost focuses on the net revenue that could be generated in the next best use of a scarce input. Opportunity cost is also called as "Alternative Cost".

If a firm owns a land, there is no cost of using the land (ie., the rent) in the firm's account. But the firm has an opportunity cost of using the land, which is equal to the rent forgone by not letting the land out on rent.

(C) Sunk Cost
Sunk costs are those do not alter by varying the nature or level of business activity. Sunk costs are generally not taken into consideration in decision - making as they do not vary with the changes in the future. Sunk costs are a part of the outlay/actual costs. Sunk costs are also called as "Non-Avoidable costs" or "Inescapable costs".
Examples: All the past costs are considered as sunk costs. The best example is amortization of past expenses, like depreciation.

(D) Incremental Cost
Incremental costs are addition to costs resulting from a change in the nature or level of business activity. As the costs can be avoided by not bringing any variation in the activity in the activity, they are also called as "Avoidable Costs" or "Escapable Costs". More ever incremental costs resulting from a contemplated change in the future, they are also called as "Differential Costs"
Example: Change in distribution channels adding or deleting a product in the product line.

(E) Explicit Cost
Explicit costs are those expenses/expenditures that are actually paid by the firm. These costs are recorded in the books of accounts. Explicit costs are important for calculating the profit and loss accounts and guide in economic decision-making. Explicit costs are also called as "Paid out costs"
Example: Interest payment on borrowed funds, rent payment, wages, utility expenses etc.

(F) Implicit Cost

Implicit costs are a part of opportunity cost. They are the theoretical costs i.e., they are not recognised by the accounting system and are not recorded in the books of accounts but are very important in certain decisions. They are also called as the earnings of those employed resources which belong to the owner himself. Implicit costs are also called as "Imputed costs".

Examples: Rent on idle land, depreciation on fully depreciated property still in use, interest on equity capital etc.

(G) Book Cost
Book costs are those business costs which don't involve any cash payments but a provision is made in the books of accounts in order to include them in the profit and loss account and take tax advantages, like provision for depreciation and for unpaid amount of the interest on the owners capital.

(H) Out Of Pocket Costs
Out of pocket costs are those costs or expenses which are current payments to the outsiders of the firm. All the explicit costs fall into the category of out of pocket costs.
Examples: Rent Paid, wages, salaries, interest etc

(I) Accounting Costs
Accounting costs are the actual or outlay costs that point out the amount of expenditure that has already been incurred on a particular process or on production as such accounting costs facilitate for managing the taxation need and profitability of the firm.
Examples: All Sunk costs are accounting costs

(J) Economic Costs
Economic costs are related to future. They play a vital role in business decisions as the costs considered in decision - making are usually future costs. They have the nature similar to that of incremental, imputed explicit and opportunity costs.

(K) Direct Cost
Direct costs are those which have direct relationship with a unit of operation like manufacturing a product, organizing a process or an activity etc. In other words, direct costs are those which are directly and definitely identifiable. The nature of the direct costs are related with a particular product/process, they vary with variations in them. Therefore all direct costs are variable in nature. It is also called as "Traceable Costs"

Examples: In operating railway services, the costs of wagons, coaches and engines are direct costs.

(L) Indirect Costs

Indirect costs are those which cannot be easily and definitely identifiable in relation to a plant, a product, a process or a department. Like the direct costs indirect costs, do not vary i.e., they may or may not be variable in nature. However, the nature of indirect costs depend upon the costing under consideration. Indirect costs are both the fixed and the variable type as they may or may not vary as a result of the proposed changes in the production process etc. Indirect costs are also called as Non-traceable costs. Example: The cost of factory building, the track of a railway system etc., are fixed indirect costs and the costs of machinery, labour etc.,

UNIT-3

INTRODUCTION TO MARKET AND PRICING STRATEGIES

Introduction

Pricing is an important, if not the most important function of all enterprises. Since every enterprise is engaged in the production of some goods or/and service. Incurring some expenditure, it must set a price for the same to sell it in the market.

Price

Price denotes the exchange value of a unit of good expressed in terms of money. Thus the current price of a maruti car around Rs. 2,00,000, the price of a hair cut is Rs. 25 the price of a economics book is Rs. 150 and so on. Nevertheless, if one gives a little, if one gives a little thought to this subject, one would realize that there is nothing like a unique price for any good. Instead, there are multiple prices.

Price concepts

Price of a well-defined product varies over the types of the buyers, place it is received, credit sale or cash sale, time taken between final production and sale, etc.

The multiple prices is more serious in the case of items like cars refrigerators, coal, furniture and bricks and is of little significance for items like shaving blade, soaps, tooth pastes, creams and stationeries. Differences in various prices of any good are due to differences in transport cost, storage cost accessories, interest cost, intermediaries' profits etc.

Price determinants – Demand and supply (Equilibrium Price)

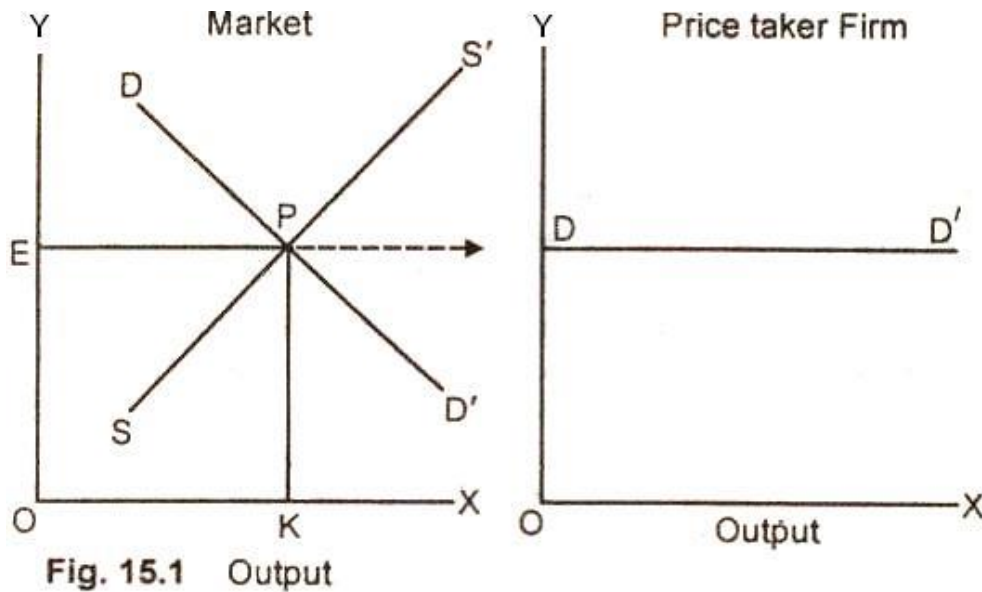
The price at which demand and supply of a commodity is equal known as equilibrium price. The demand and supply schedules of a good are shown in the table below.

Demand supply schedule

| Price | Demand | Supply |
|-------|--------|--------|
| 50 | 100 | 200 |

| | | |
|----|-----|-----|
| 40 | 120 | 180 |
| 30 | 150 | 150 |
| 20 | 200 | 110 |
| 10 | 300 | 50 |

Of the five possible prices in the above example, price Rs.30 would be the market-clearing price. No other price could prevail in the market. If price is Rs. 50 supply would exceed demand and consequently the producers of this good would not find enough customers for their demand, thereby they would accumulate unwanted inventories of output. Similarly if price were Rs.10, there would be excess demand, which would give rise to competition among the buyers of good, forcing price to Rs.30. At price Rs.30, demand equals supply and thus both producers and consumers are satisfied. The economist calls such a price as equilibrium price.



It was seen in unit 1 that the demand for a good depends on, a number of factors and thus, every factor, which influences either demand or supply is in fact a determinant of price. Accordingly, a change in demand or/and supply causes price change.

BASIC FACTORS IN PRICING

Factors considered while pricing:

- 1. Price of raw materials:** Price of any item primarily depends upon the raw material availability and the cost spent on purchasing the raw material. If prices of raw materials are high, price of the finished product will also be high and vice versa. If availability of raw materials is less, the price will get increased else it will be minimum.
- 2. Production costs:** Next factor deterring the price of the product is the production costs. Higher the production costs, higher will be the price of finished goods. It includes cost of machinery, hiring people, transportation costs, and distribution costs etc.
- 3. Profit expectation:** Profit expectation influences the price a lot. If the organization has higher profit expectations, the price of the product becomes high and vice versa.
- 4. Price of the complementary goods:** The organization needs to have an eye on the Complementary goods price. If the complimentary goods price is high, the organization has to reduce its price otherwise both the products will lose the demand. But the firm can price the item high if the price of complimentary good is less.
- 5. Number of substitutes:** If the number of substitutes for the product is high, the organization should be very careful while pricing the item. Because of perfect competition, there is a chance of losing the customer base. If the number of substitutes is less, the organization can price the item according to their wish.
- 6. Intervention of government:** One of the most important factors in the necessary products is the government intervention. In the some product category, Government will fix some price ceiling and the organization has to price their items according to that only.
- 7. Demand for the product:** The most common factor that has to be considered while pricing is demand. Higher the demand, higher the price can be charged.

MARKET

Market is a place where buyer and seller meet, goods and services are offered for the sale and transfer of ownership occurs. A market may be also defined as the demand made by a certain group of potential buyers for a good or service. The former one is a narrow concept and later one, a broader concept.

Narrow concept Economists describe a market as a collection of buyers and sellers who transact over a particular product or product class (the housing market, the clothing market, the grain market etc.). For business purpose we define a market as people or organizations with wants (needs) to satisfy, money to spend, and the willingness to spend it.

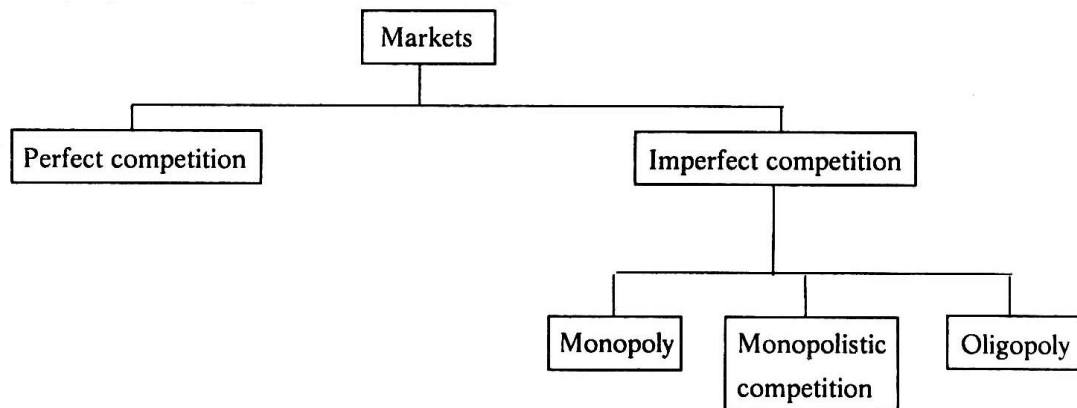
Broadly, market represents the structure and nature of buyers and sellers for a commodity/service and the process by which the price of the commodity or service is established. In this sense, we are referring to the structure of competition and the process of price determination for a commodity or service

Different Market Structures

Market:

A Market is a place where sellers sell and buyers buy a commodity. According to Robert Dorfman, a market is a group of people and firm who are in contact with one another for the purpose of buying and selling some commodity. It is not necessary that every member of the market be in contact with every other one; the contacts may be indirect.

Market structure describes the competitive environment in the market for any good or service. A market consists of all firms and individuals who are willing and able to buy or sell a particular product. This includes firms and individuals currently engaged in buying and selling a particular product, as well as potential entrants.



Perfect competition It refers to a market structure where competition among the sellers and buyers prevails in its most perfect form. In a perfectly competitive market, a single market price prevails for the commodity, which is determined by the forces of total demand and total supply in the market.

Monopoly:- If there is only one seller, monopoly market is said to exist. An extreme version of imperfect market is monopoly. Here a single seller completely controls the entire industry. It is only firm producing the given product in its industry. In case of monopoly, there is very little difference between the firm and industry. The firm is called monopolist or monopoly firm. Maruti-Suzuki enjoyed all the government protection for a long time when it enjoyed monopoly in respect of small cars.

Monopolistic Competition:- When large number of sellers produces differentiated products, monopolistic competition is said to exist. A product is said to be differentiated when its important features vary. It may be differentiated based on real or perceived differences. For cameras, the important features include Zoom lenses, focal length, memory, size of camera, aperture and exposure controls, flash, safety, digital day and date display, and the overall picture quality and so on.

Duopoly:- If there are two sellers, duopoly is said to exist. If Pepsi and coke are the two companies in soft drinks, this market is called duopoly. Basic facilities for satellite communication are presently provided by Mahanagar Telephone Nigam Limited (MNTL) and Videsh Sanchar Nigam Limited (VSNL). This market for satellite Communication can be referred to as duopoly.

Oligopoly:- Another variety of imperfect competition is oligopoly. If there is competition among a few sellers, oligopoly is said to exist. The examples are the car manufacturing companies (such as Maruti Suzuki, Hindustan Motors, Daewoo, Toyota and so on), newspapers (such as The Hindu, Indian Express, Times of India, Economic Times, Eenadu and so on). In oligopoly, each individual seller or firm can affect the market price

Comparison of various market forms

| Characteristic | Perfect competition | Imperfect competition | | |
|-------------------------|---------------------|--------------------------|----------------------|---------------------|
| | | Monopolistic competition | oligopoly | Monopoly |
| Number of firms | Many | Many | few | one |
| Ability to affect price | None | Limited | Some | considerable |
| Entry barriers | None (Free entry) | None (Free entry) | Some (limited entry) | Complete (No entry) |
| Product type | Homogeneous | Differentiated | Homogeneous | Brand |

| | | | | |
|-------------------|--------------------------------|-------------------------------------|--|--|
| Marketing methods | Commodity exchanges or actions | Advertising quality and differences | Advertising quality Revelry administered prices | Promotional and public relations advertising |
| Example | Fruit stalls | Grocer | Cars | Post office |

Characteristics of Perfect Competition

The following features characterize a perfectly competitive market:

1. **A large number of buyers and sellers:** The number of buyers and sellers is large and the share of each one of them in the market is so small that none has any influence on the market price.
2. **Homogeneous product:** The product of each seller is totally undifferentiated from those of the others. Under perfect competition, the product offered for sale by all the seller must be identical in every respect. The goods offered for sale are perfect substitutes of one another. Buyers have no special preference for the product of a particular seller. No seller can raise the price above the prevailing price or lower the price below the prevailing price.
3. **Free entry and exit:** Any buyer and seller is free to enter or leave the market of the commodity. Under perfect competition, there will be no restriction on the entry and exit of both buyers and sellers. If the existing sellers start making abnormal profits, new sellers should be able to enter the market freely. This will bring down the abnormal profits to the normal level. Similarly, when losses will occur existing sellers may leave the market. However, such free entry or free exit is possible only in the long run, but not in the short-run.
4. **Perfect knowledge:** All buyers and sellers have perfect knowledge about the market for the commodity. Perfect competition implies perfect knowledge on the part of buyers and sellers regarding the market conditions. As a results, no buyer will be prepared to pay a price higher than the prevailing price. Sellers will not charge a price higher or lower than the prevailing price. In this market, advertisement has no scope.
5. **Indifference (No attachment):** No buyer has a preference to buy from a particular seller and no seller to sell to a particular buyer. **There is no attachment between the buyers and sellers under perfect competition. Since products of all sellers are identical and their prices are the same a buyer is free to buy the commodity from any seller he likes. He has no special inclination for the product of any seller as in case of monopolistic competition or oligopoly. Theoretically, perfect competition is irrelevant. In reality, it does not exist.**
6. **Non-existence of transport costs:** Perfectly competitive market also assumes the non-existence of transport costs.
7. **Perfect mobility of factors of production:** Factors of production must be in a position to move freely into or out of industry and from one firm to the other. The second perfection mobility of factors of production from one use to another use. This feature ensures that all sellers or firms get equal

advantages so far as services of factors of production are concerned. This is essential to enable the firms and industry to achieve equilibrium.

Under such a market no single buyer or seller plays a significant role in price determination. On the other hand all of them jointly determine the price. The price is determined in the industry, which is composed of all the buyers and seller for the commodity. The demand curve facing the industry is the sum of all consumers' demands at various prices. The industry supply curve is the sum of all sellers' supplies at various prices.

Pure competition and perfect competition

The term perfect competition is used in a wider sense. Pure competition has only limited assumptions. When the assumptions, that large number of buyers and sellers, homogeneous products, free entry and exit are satisfied, there exists pure competition. Competition becomes perfect only when all the assumptions (features) are satisfied. Generally pure competition can be seen in agricultural products.

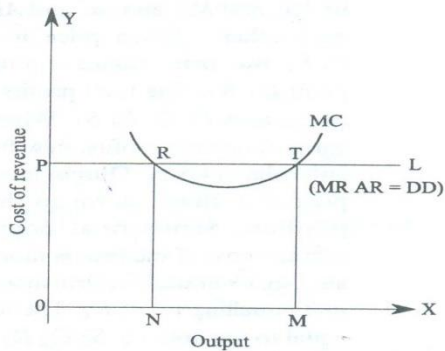
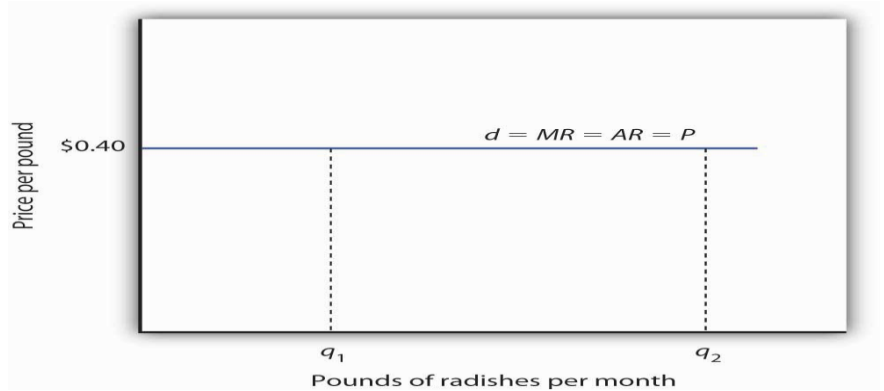


Fig. 6.2



The equilibrium of a perfectly competitive firm may be explained with the help of the fig. 6.2.

In the given fig. PL and MC represent the Price line and Marginal cost curve. PL also represents Marginal revenue, Average revenue and demand. As Marginal revenue, Average revenue and demand are the same in perfect competition, all are equal to the price line. Marginal cost curve is U- shaped curve cutting MR curve at R and T. At point R marginal cost becomes equal to marginal revenue. But MC curve cuts the MR curve from above. So this is not the equilibrium position. The downward sloping marginal cost curve indicates that the firm can reduce its cost of production by increasing output.

PRICE-OUTPUT DETERMINATION IN CASE OF PERFECT COMPETITION

The price or value of a commodity under perfect competition is determined by the demand for and the supply of that commodity.

Under perfect competition there is large number of sellers trading in a homogeneous product. Each firm supplies only very small portion of the market demand. No single buyer or seller is powerful enough to influence the price. The demand of all consumers and the supply of all firms together determine the price.

The individual seller is only a price taker and not a price maker. An individual firm has no price policy of its own. Thus, the main problem of a firm in a perfectly competitive market is not to determine the price of its product but to adjust its output to the given price, So that the profit is maximum.

Marshall however gives great importance to the time element for the determination of price. He divided the time periods on the basis of supply and ignored the forces of demand. **It is two types 1. Time based 2. Profit based**

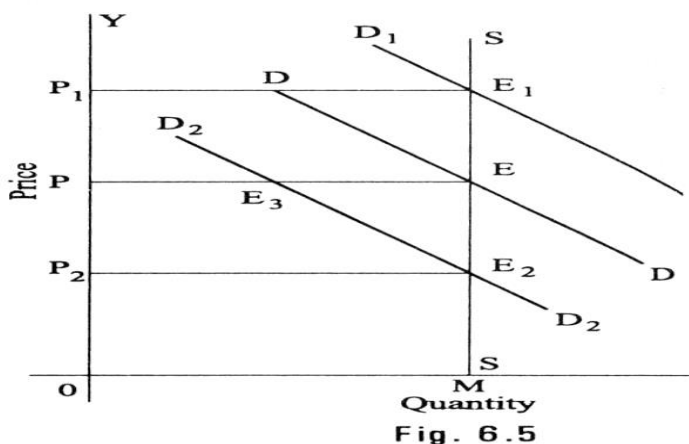
1. TIME BASED

- Very short period or Market period

- Short period
- Long period

1. Very short period:

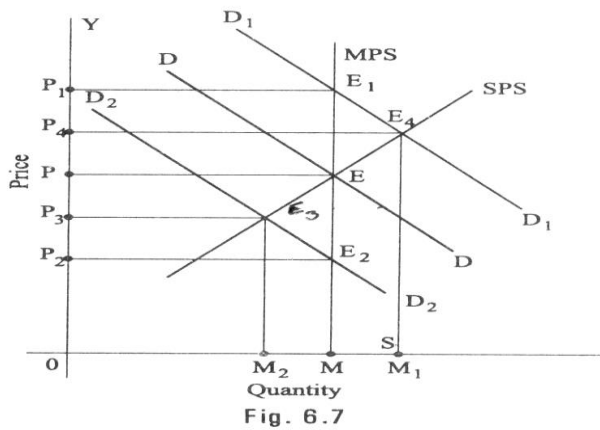
It is the period in which the supply is more or less fixed because the time available to the firm to adjust the supply of the commodity to its changed demand is extremely short; say a single day or a few days. The price determined in this period is known as Market Price.



In this figure quantity is represented along X-axis and price is represented along Y-axis. MS is the very short period supply curve of perishable goods. DD is demand curve. It intersects supply curve at E. The price is OP. The quantity exchanged is OM. D1 D1 represents increased demand. This curve cuts the supply curve at E1. Even at the new equilibrium, supply is OM only. But price increases to OP1. So, when demand increases, the price will increase but not the supply. If demand decreases new demand curve will be D2 D2. This curve cuts the supply curve at E2. Even at this new equilibrium, the supply is OM only. But price falls to OP2. Hence in very short period, given the supply, it is the change in demand that influences price. The price determined in a very short period is called Market Price.

2. Short Period:

In this period, the time available to firms to adjust the supply of the commodity to its changed demand is, of course, greater than that in the market period. In this period altering the variable factors like raw materials, labour, etc can change supply. During this period new firms cannot enter into the industry.



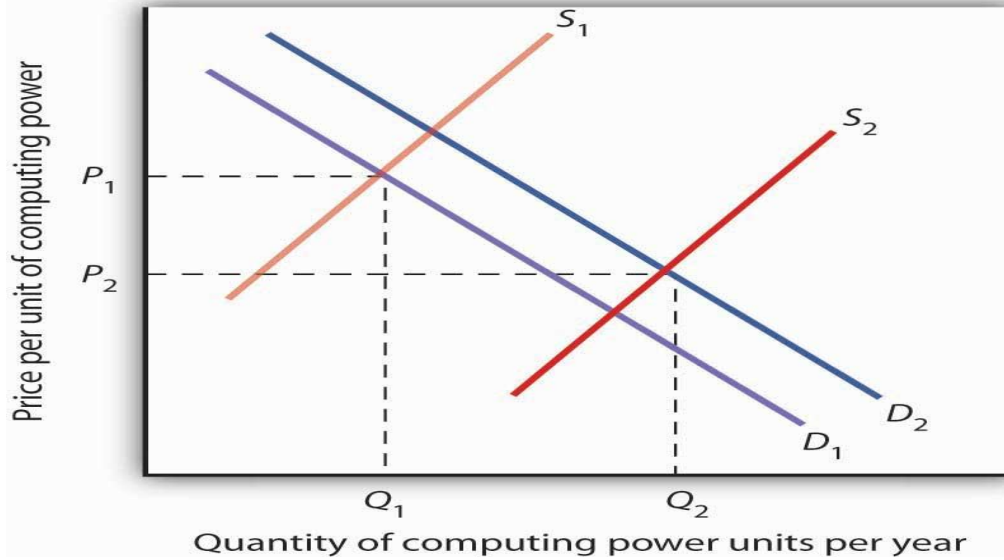
In the given diagram MPS is the market period supply curve. DD is the initial demand curve. It intersects MPS curve at E. The price is OP and out put OM. Suppose demand increases, the demand curve shifts upwards and becomes D1D1. In the very short period, supply remains fixed on OM. The new demand curve D1D1 intersects MPS at E1. The price will rise to OP1. This is what happen in the very short-period.

As the price rises from OP to OP1, firms expand output. As firms can vary some factors but not all, the law of variable proportions operates. This results in new short-run supply curve SPS. It interests D1 D1 curve at E4. The price will fall from OP1 to OP4.

It the demand decreases, DD curve shifts downward and becomes D2D2. It interests MPS curve at E2. The price will fall to OP2. This is what happens in market period. In the short period, the supply curve is SPS. D2D2 curve interests SPS curve at E3. The short period price is higher than the market period price.

3. Long period:

In this period, a sufficiently long time is available to the firms to adjust the supply of the commodity fully to the changed demand. In this period not only variable factors of production but also fixed factors of production can be changed. In this period new firms can also enter the industry. The price determined in this period is known as long run normal price.



2. PRICE FIXATION AND PROFIT

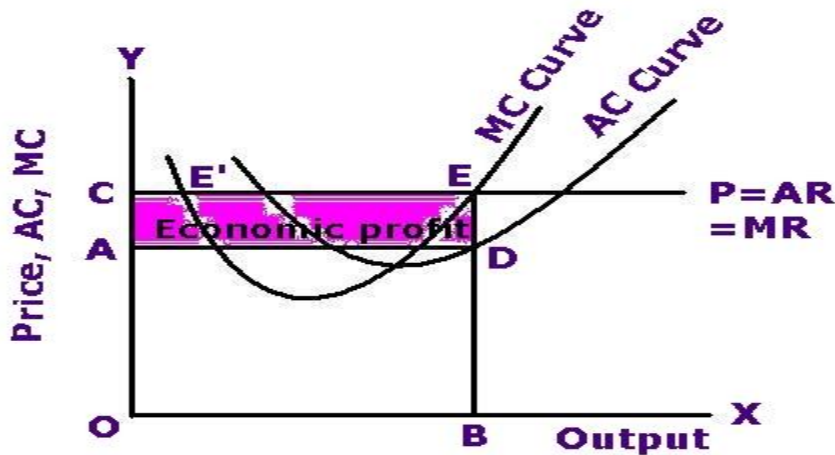
1. Super normal profit :
2. Normal profit :
3. *Subnormal profit*

1. Super normal profit :

The price and output of the firm are determined, under perfect competition, based on the industry price and its own cost. The industry price has greater say in this process because the firm's own sales are very small and significant. The process of price output determination in case of perfect competition is illustrated.

The firm's demand curve is horizontal at the price determined in the industry ($MR=AR=price$). This demand curve is also known as average revenue curve. This is because if all the units are sold at the same price, on an average, the revenue to the firm equals its price.

When the average revenue is constant (neither falling nor rising), it will coincide with the marginal revenue curve. Thus, CC is the demand curve representing the price, average revenue curve, and also the marginal revenue curve (Price = AR = MR). Average cost (AC) and marginal cost (MC) are the firm average and marginal cost curves.



In fig. 8.3, the firm satisfies both conditions: (a) $MR = MC$; and (b) MC curve must cut the MR curve from below. The firm attains equilibrium at point D where $MR = MC$. The MC curve passes through the minimum point of AC curve.

Equilibrium Output Determination of a Firm under Perfect Competition in the Short run:

The firm gets higher profits as long as the price (in this case MR or AR) it receives for each unit exceeds the average cost (AC) of production.

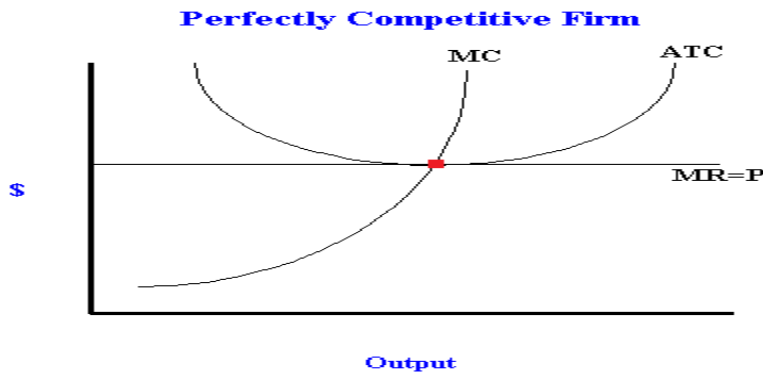
Average, DE is the average profit and the area CDEF is the total profit which constitutes the 'supernormal' or 'abnormal' profits.

Based on its cost function and market condition, the firm may make profits. Losses or just break even in the short-run

2. Normal profit :

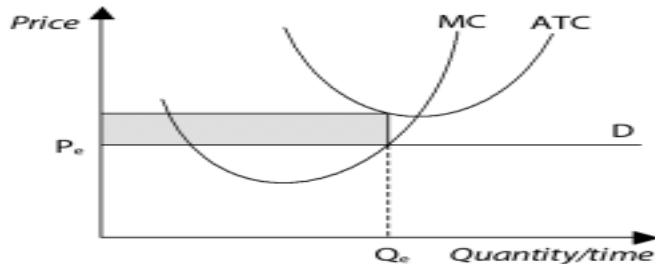
Having been attracted by supernormal profits, more and more firms enter the industry. With the result, there will be a scramble for scarce inputs among the competing firms pushing the input prices. Hence, the average cost increases. The entry of more and more firms will expand the supply pulling down the market price. As a result, the super normal profits hitherto enjoyed by the firms get eroded. The entry of the firms into the industry continues till the supernormal profits but not supernormal profits. Normal profits are the profits that are just sufficient for the firms to stay in the business. It is to be noted that normal profits are included in the average cost curve.

All those firms that are not able to earn at least normal will leave the industry.



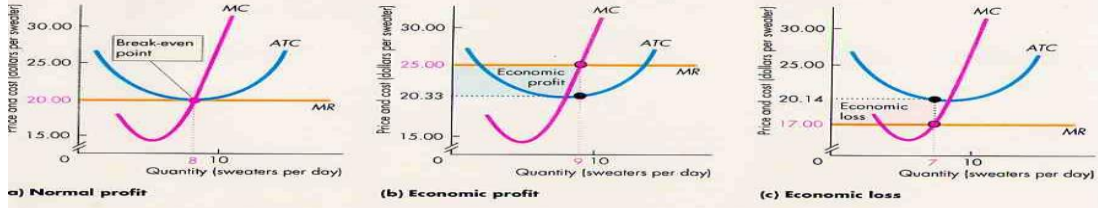
3. Subnormal profit

In the short-run, if the market price is below the average cost, the firm may still supply goods provided the market price is above the average variable cost. If the market price is below the average variable cost, the firm refuses to sell the goods even in the short-run for the simple reason that, by not selling the goods, the firm suffers a loss equal to average fixed cost only. If it sells the goods, the loss will be more than the average fixed costs. Thus, the firm's short-run supply curve will be that portion of the marginal cost curve which is above the average variable cost curve



Long-run marginal cost (LMC) curve passes through the minimum point of the long-run average cost curve (LAC) at E, while passing through the marginal revenue curve. E is the equilibrium point and the firm produces OQ units of output. It can be noted that normal profits are not visible to the naked eye since normal profits are included in the average cost. Long-run average cost includes the opportunity cost of staying in business

FIGURE 12.4
Three Possible Profit Outcomes in the Short Run



Monopoly

The word monopoly is made up of two syllables, Mono and poly. Mono means single while poly implies selling. Thus monopoly is a form of market organization in which there is only one seller of the commodity. There are no close substitutes for the commodity sold by the seller. Pure monopoly is a market situation in which a single firm sells a product for which there is no good substitute.

Features of monopoly

The following are the features of monopoly.

1. **Single person or a firm:** A single person or a firm controls the total supply of the commodity. There will be no competition for monopoly firm. The monopolist firm is the only firm in the whole industry.
2. **No close substitute:** The goods sold by the monopolist shall not have closely competition substitutes. Even if price of monopoly product increase people will not go in far substitute. For example: If the price of electric bulb increase slightly, consumer will not go in for kerosene lamp.
3. **Large number of Buyers:** Under monopoly, there may be a large number of buyers in the market who compete among themselves.
4. **Price Maker:** Since the monopolist controls the whole supply of a commodity, he is a price-maker, and then he can alter the price.
5. **Supply and Price:** The monopolist can fix either the supply or the price. He cannot fix both. If he charges a very high price, he can sell a small amount. If he wants to sell more, he has to charge a low price. He cannot sell as much as he wishes for any price he pleases.
6. **Downward Sloping Demand Curve:** The demand curve (average revenue curve) of monopolist slopes downward from left to right. It means that he can sell more only by lowering price.

Types of Monopoly

Monopoly may be classified into various types. The different types of monopolies are explained below:

Legal Monopoly: If monopoly arises on account of legal support or as a matter of legal privilege, it is called Legal Monopoly. Ex. Patent rights, special brands, trade means, copyright etc.

Government Monopoly: Sometimes the government will take the responsibility of supplying a commodity and avoid private interference. Ex. Water, electricity. These monopolies, created to satisfy social wants, are formed on social considerations. These are also called Social Monopolies.

Private Monopoly: If the total supply of a good is produced by a single private person or firm, it is called private monopoly. Hindustan Lever Ltd. Is having the monopoly power to produce Lux Soap.

Pricing under Monopoly

Monopoly refers to a market situation where there is only one seller. He has complete control over the supply of a commodity. He is therefore in a position to fix any price. Under monopoly there is no distinction between a firm and an industry. This is because the entire industry consists of a single firm.

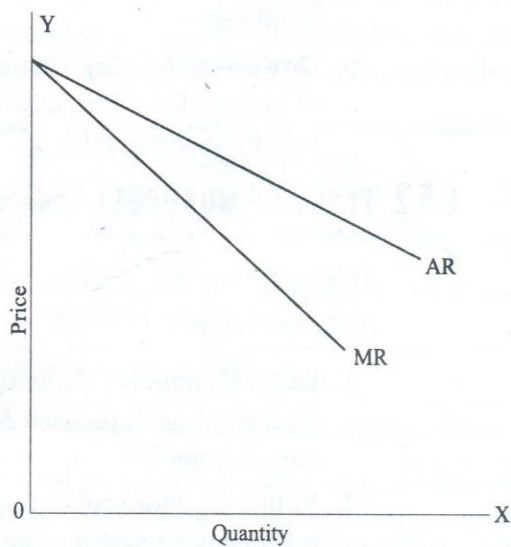


Fig. 6.11

The market demand curve of the monopolist (the average revenue curve) is downward sloping. Its corresponding marginal revenue curve is also downward sloping. But the marginal revenue curve lies below the average revenue curve as shown in the figure. The monopolist faces the down-sloping demand curve because to sell more output, he must reduce the price of his product. The firm's demand curve and industry's demand curve are one and the same. The average cost and marginal cost curve are U shaped curve. Marginal cost falls and rises steeply when compared to average cost.

Price output determination (Equilibrium Point)

The monopolistic firm attains equilibrium when its marginal cost becomes equal to the marginal revenue. The monopolist always desires to make maximum profits. He makes maximum profits when $MC=MR$. He does not increasing his output if his revenue exceeds his costs. But when the costs exceed the revenue, the monopolist firm incur loses. Hence the monopolist curtails his production. He produces up to that point where additional cost is equal to the additional revenue ($MR=MC$). Thus point is called equilibrium point. The price output determination under monopoly may be explained with the help of a diagram.

In the diagram 6.12 the quantity supplied or demanded is shown along X-axis. The cost or revenue is shown along Y-axis. AC and MC are the average cost and marginal cost curves respectively. AR and MR curves slope downwards from left to right. AC and MC are U shaped curves. The monopolistic firm attains equilibrium when its marginal cost is equal to marginal revenue ($MC=MR$). Under monopoly, the MC curve may cut the MR curve from below or from a side. In the diagram, the above condition is satisfied at point E. At point E, $MC=MR$. The firm is in equilibrium. The equilibrium output is OM.

The above diagram (Average revenue) = MQ or OP

Average cost = MR

Profit per unit = Average Revenue-Average cost= $MQ-MR=QR$

Total Profit = $QRXSR=PQRS$

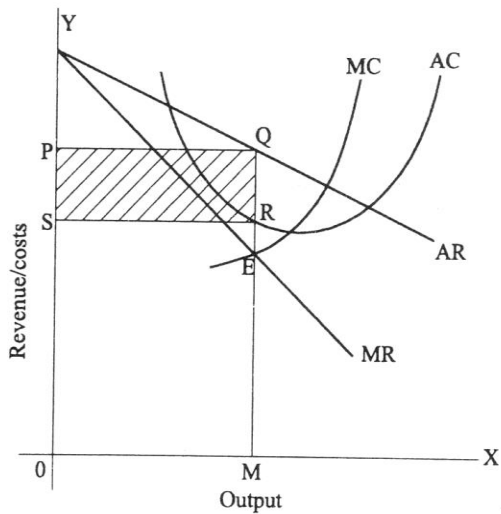


Fig. 6.12

The area PQRS represents the maximum profit earned by the monopoly firm.

But it is not always possible for a monopolist to earn super-normal profits. If the demand and cost situations are not favorable, the monopolist may realize short run losses.

Through the monopolist is a price maker, due to weak demand and high costs; he suffers a loss equal to PABC.

If $AR > AC$ -> Abnormal or super normal profits.

If $AR = AC$ -> Normal Profit

If $AR < AC$ -> Loss

In the long run the firm has time to adjust his plant size or to use existing plant so as to maximize profits.

Monopolistic competition

Perfect competition and pure monopoly are rare phenomena in the real world. Instead, almost every market seems to exhibit characteristics of both perfect competition and monopoly. Hence in the real world it is the state of imperfect competition lying between these two extreme limits that work. Edward. H. Chamberlain developed the theory of monopolistic competition, which presents a more realistic picture of the actual market structure and the nature of competition.

Characteristics of Monopolistic Competition The important characteristics of monopolistic competition are:

- 1. Existence of Many firms:** Industry consists of a large number of sellers, each one of whom does not feel dependent upon others. Every firm acts independently without bothering about the reactions of its rivals. The size is so large that an individual firm has only a relatively small part in the total market, so that each firm has very limited control over the price of the product. As the number is relatively large it is difficult for these firms to determine its price- output policies without considering the possible reactions of the rival forms. A monopolistically competitive firm follows an independent price policy.
- 2. Product Differentiation:** Product differentiation means that products are different in some ways, but not altogether so. The products are not identical but the same time they will not be entirely different from each other. IT really means that there are various monopolist firms competing with each other. An example of monopolistic competition and product differentiation is the toothpaste produced by various firms. The product of each firm is different from that of its rivals in one or more respects. Different toothpastes like Colgate, Close-up, Forehans, Cibaca, etc., provide an example of monopolistic competition. These products are relatively close substitute for each other but not perfect substitutes. Consumers have definite preferences for the particular varieties or brands of products offered for sale by various sellers. Advertisement, packing, trademarks, brand names etc. help differentiation of products even if they are physically identical.
- 3. Large Number of Buyers:** There are large number buyers in the market. But the buyers have their own brand preferences. So the sellers are able to exercise a certain degree of monopoly over them. Each seller has to plan various incentive schemes to retain the customers who patronize his products.
- 4. Free Entry and Exist of Firms:** As in the perfect competition, in the monopolistic competition too, there is freedom of entry and exit. That is, there is no barrier as found under monopoly.
- 5. Selling costs:** Since the products are close substitute much effort is needed to retain the existing consumers and to create new demand. So each firm has to spend a lot on selling cost, which includes cost on advertising and other sale promotion activities.
- 6. Imperfect Knowledge:** Imperfect knowledge about the product leads to monopolistic competition. If the buyers are fully aware of the quality of the product they cannot be influenced much by advertisement or other sales promotion techniques. But in the business world we can see that though the quality of certain products is the same, effective advertisement and sales promotion techniques make certain brands monopolistic. For examples, effective dealer service backed by advertisement-helped popularization of some brands through the quality of almost all the cement available in the market remains the same.

PRICING METHODS

Pricing is not an exact science. Pricing decisions, more often, are done by trial and error. Most often we see discounts and concessions offered at the time of purchase. Sometimes, certain shames are introduced wherein if you buy a packet of Tea powder, a dining still table spoon is free! Why are all these provided? While the main objective of such shames is to increase sales, one of the other objectives is also to correct the pricing strategy, if at all it has gone wrong earlier.

Pricing is an important exercise. Under-pricing will result in losses and over-pricing will make the customers run away. To determine pricing in a scientific manner, it is necessary to understand the pricing objectives, pricing methods, pricing policies, and pricing procedures.

PRICING OBJECTIVES

Pricing objectives refer to the general and specific objectives, which a firm sets for itself in establishing the price of its products and/or services and these are not much different from the marketing objectives or firm's overall business objectives.

Generally, the following are the objectives of pricing.

- (a) To maximize profits,
- (b) To increase sales
- (c) To increase the market share,
- (d) To satisfy customers, and
- (e) To meet the competition.

PRICING POLICY

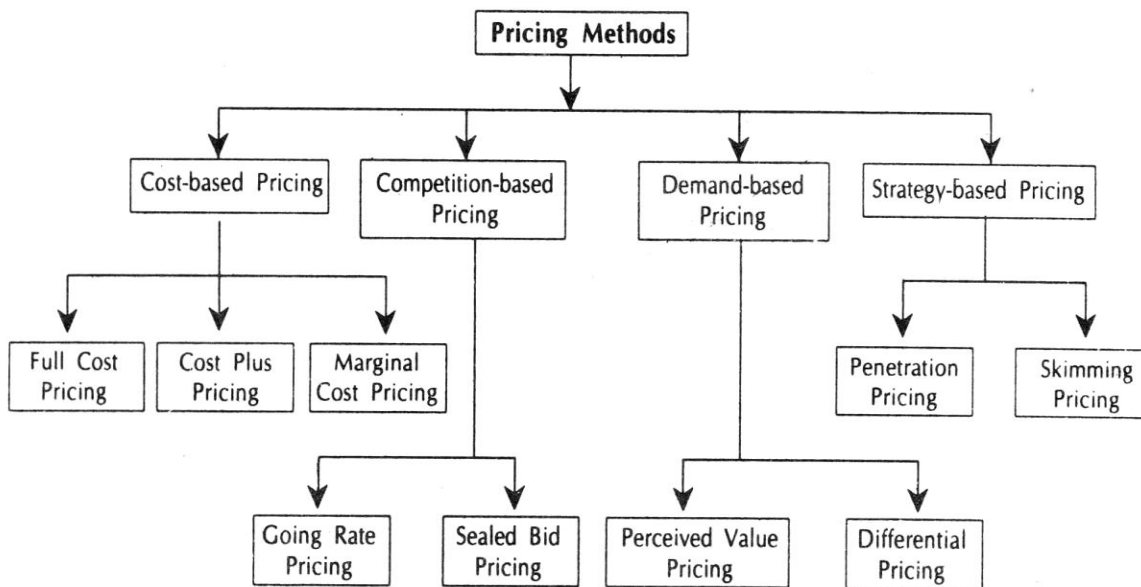
The firm has to formulate its pricing policies, particularly when it deals in multiple products. The pricing policies are intended to bring consistency in the pricing pattern. For instance, to maintain price differentials between the deluxe models and basic models and so on. Pricing policy defines how to handle complex issues such as price discrimination and so forth.

PRICING METHODS

1. COST-BASED PRICING METHODS

(a) **COST PULS PRICING**;- This is also called 'full cost or mark up' pricing. Here the average cost at normal capacity of output is ascertained and then a conventional margin of profit is added to the cost to arrive at the price. In other words, find out the product unit's total cost and add a percentage of profit to arrive at the selling price.

(b) **MARGINAL COST PRICING**;- In marginal cost pricing, selling price is fixed in such a way that it covers fully the variable or marginal cost and contributes towards recovery of fixed costs fully or partly, depending upon the market situations. In times of stiff competition, marginal cost offers a guide-line as to how far the selling price can be lowered.



4. COMPETITION-ORIENTED PRICING

Here the pricing is a very complex task. Here the price of a product is set based on what the competitor charges for similar products. In other words, a reduction in the price of products by the competitor will force us also to follow suit. In such a case, how far we can go on reducing the price? Here the marginal cost concept comes handy. As long as the price covers the marginal cost, continue to sell. If not, better stop selling. It is because, every unit sold at less than marginal cost results in loss.

SEALED BID PRICING;- This method popular in tenders and contracts. Each contracting firm quotes its price in a sealed cover called 'tender'. All the tenders are opened on a scheduled date and the person, who quotes the lowest price, other things remaining the same, is awarded the contract. The objective of the bidding firm is to bag the contract and hence it will quote lower than others. Marginal cost concept continues to be the guiding principle here also. Any price quoted less than the marginal price results in loss. Any price quoted ambitiously, no doubt, results in profit but suffers from the danger of losing the contract.

GOING RATE PRICING;- Here the price charged by the firm is in tune with price charged in the industry as a whole. In other words, the prevailing market price at a given point of time is the guiding factor. When one wants to buy determine the price. Normally the market leaders keep announcing the prevailing prices at a given point of time based on demand and supply positions.

5. DEMAND-ORIENTED PRICING

The higher the demand, the higher can be the price. Cost is not the consideration here. The key to pricing here is the value as perceived by the consumer. This is a relatively modern marketing concept. Today most of the organizations consider favorably such proposals where there is possibility to charge higher prices on their products and services, even though they call for higher investments and latest technology. Demand-oriented pricing can take two forms: (a) Differential pricing also called price discrimination, (b) perceived value pricing.

PRICE DISCRIMINATION;-

Price discrimination refers to the practice of charging different prices to customers for the same good. The firm uses its desecration to charge differently the different customers. It is also called differential pricing. customers of different profiles can be separated in various ways, such as by different consumer requirements (for example bulk and low gas supply to industrial and household consumers), by nature of product itself (for example original and replacement components of pressure cookers), by geographical areas (domestic and international markets), by income group (in a government hospital the patients are charged a fee based on their income groups) and so on.

The objects of price discrimination are to

- * develop a new market including for export,
- * utilize the maximum capacity,
- * share consumer's surplus along with consumer, not leaving it totally to him,

* meet competition,

* increase market share.

PERCEIVED VALUE PRICING;- Perceived value pricing refers to where the price is fixed on the basis of the perception of the buyer of the value of the products.

6. STRATEGY-BASED PRICING

MARKET SKIMMING;-

When the product is introduced for the first time in the market, the company follows this method. Under this method, the company fixes a very high price for the product. The main idea is to charge the customer maximum possible. This strategy is mostly found in case of technology products. When Sony introduces a particular TV model, it fixes a very high price. When new series of Pentium is released into market, it is priced very high. Initially, all cannot afford except a very few. As the time passes by, the price comes down and more people can afford to buy except a very few. This method can be followed only when (i) the demand for the product is inelastic,(ii) there is no threat from competitors,(iii) a high price is coupled with high technology or quality.

MARKET PENETRATION;-

This is exactly opposite to the market skimming method. Here the price of the product is fixed so low that the company can increase its market share. The company attains profits with increasing volumes and increase in the market share. More often, the companies believe that it is necessary to dominate the market in the long-run than making profits in the short-run. This method is more suitable where market is highly price-sensitive. In such a case, a low price stimulates more rapid growth. It will be more appropriate in cases where the costs are likely to fall with increase in output. A low price may not attract significant degree of competition also.

TWO-PART PRICING;-

The firms with market power can enhance profits by the strategy of two-part pricing. Under this strategy, a firm charges a fixed fee for the right to purchase its goods, plus a per unit charges for each unit purchased. Entertainment house such as country clubs. Golf courses and health clubs usually adopt this strategy. Then charge a fixed initiation fee plus a charge per month or per visit, to use the facilities. There are also organizations that charge membership fee (equivalent to the consumer surplus) and offer their products and services cost-to-cost basis.

BLOCK PRICING;-

Block pricing is another way a firm with market power can enhance its profits. We see block pricing in our day-to-day life very frequently. Six Lux soaps in a single packed or five Magi noodles in a single pack illustrate this pricing method. By selling certain number of units of a product as one package, the firm earns more than by selling unit wise. The block pricing is a profit maximization price on each package. It is generally the total value the consumer receives for the package, including consumer surplus.

COMMODITY BUNDLING;-

Commodity bundling refers to the practice of bundling two or more different products together and selling them at a single 'bundle price'. The package includes the airfare, hotel, meals, sightseeing and so on at a bundled price instead of pricing each of these services separately. Computer firms offer PCs, assembling as per the customer specifications and offer them at a bundled price. The car companies provide cars with air-conditioning, Power steering, automatic transmission, auto gear and so forth, and sell them at a special price.

PEAK LOAD PRICING;-

During seasonal period when demand is likely to be higher, a firm may enhance profits by peak load pricing. The firm's philosophy is to charge a higher price during peak times than is charged during off-peak times. The pricing is done in such a way that the business is not lost to the competitors. The firm following such a strategy covers the likely losses during the off-peak times from the likely profits from the peak times.

CROSS SUBSIDISATION;-

In cases where demand for two products produced by a firm is interrelated through demand or costs, the firm may enhance the profitability of its operations through cross subsidization. Using the profits generated by established products, a firm may expand its activities by financing new product development and diversification into new product markets.

TRANSFER PRICING;- Transfer pricing is an internal pricing technique. It refers to a price at which inputs of one department are transferred to another, in order to maximize the overall profits of the company.

UNIT – 4

TYPES OF BUSINESS ORGANISATIONS & BUSINESS CYCLE

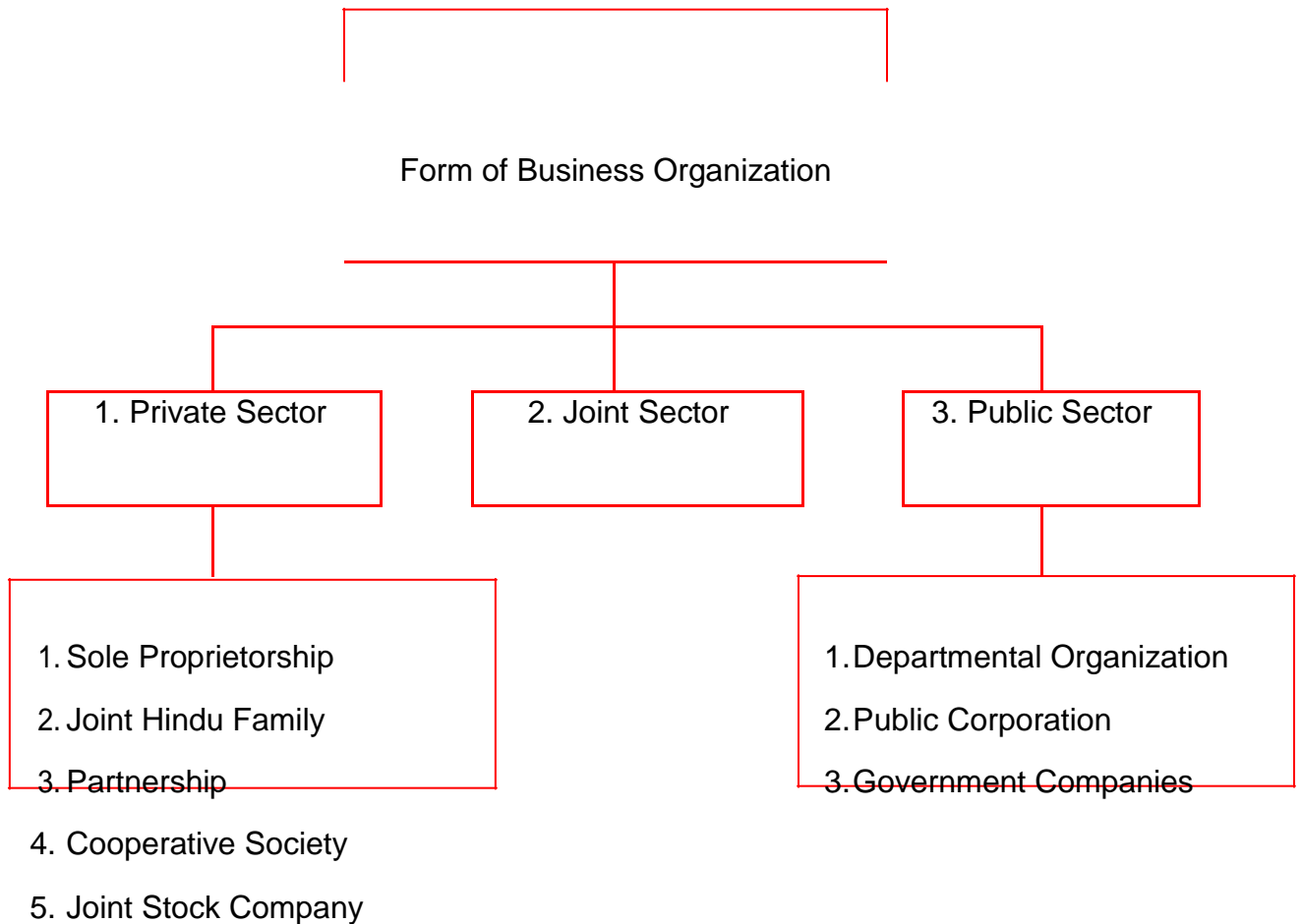
Business Activity : Activity connected with the production or purchases and sale of goods or service with the object of earning profit are called business activity.

Business Under taking :

Basis of size : According to size the business may be small, medium, and large.

Nature of activities : According to activities it is industrial, trading, service enterprises.

Ownership : According to ownership we can talk private, public and joint sector.



Form of Business Organization : Classified into three categories

Private Sector Enterprises: private sector enterprises is owned, managed and controlled by an individual or group. They are alone responsible for enjoyed the profit and also bear the losses.

Ex: Like TATA, BIRLA

Public Sector Enterprises: Public sector enterprises are one which is central government or any state government or local authorities. The government contributes the total capital.

Ex: Railways, Postal, Telephone, LIC, IFCI, SFC

Joint Sector Enterprises: It is owned, managed and controlled jointly by the private entrepreneur and government. It is also called mixed ownership enterprises. The government intention to encourage the private entrepreneurs in industrial activity, both parties share in profits and both bear the losses. These enterprises are managed and controlled by private entrepreneur or government representatives.

Ex: Maruthi Udyog Ltd., Gujarat State Fertilizer Company, Cochin Refineries.

Classification of Private Sector Enterprises:

1) Sole Proprietorship: The sole proprietorship is a form of business that is owned, managed and controlled by an individual. He has to arrange capital for the business and he alone is responsible for its management. He is only person to enjoy the profit and he is also bearing the losses if any. In running his business, however he can take the help of his family members and also make use of their services.

Advantages:

Simple and Easy: This type of ownership is simple in nature and easy to manage. The labour knows for whom they are working and to whom they are accountable.

Least legal formalities: It does not involve must legal formalities or other complicated procedure to start the business. Only a formal license from the local authority is necessary.

Quick decisions and Prompt Actions: The whole business is controlled by one man; therefore, he can take and implement the decisions quickly and in right

time. Quick decisions and prompt action enable the entrepreneur to take advantage of business opportunities for gains.

Quality Production: Since the owner takes all the risks, he gives personal attention and supervision to the products made. This may result in reduction in waste and better quality products.

Better Labour Relationship: Since the business is small, the numbers of workers are less and the owner comes in close contact with the workers. This helps to maintain good employer-employee relationship.

Personal Attention to Customers: Since the business is small it is possible to pay personal attention to customers and their requirements and to give them entire satisfactions by overcoming their complaints about the product.

Small Capital: Since capital required is small, talented men of small means can start independent business of their own and earn living.

Maintenance of Secrecy: The individual entrepreneur can easily maintain the secrets of the business as he only knows everything of his enterprise.

Flexibility: The individual ownership is highly flexible as it is capable of adjustment to the requirements of changing business conditions.

Disadvantages:

Limited Capital: Due to limited capital it is not possible to expand the business even if it is much profitable.

Unlimited liability : In case the owner is not able to pay the debts, the same can be recovered out of the sale of his business assets and personal property. The individual owner will have to think twice before adopting new and risky ventures, latest and new methods etc. as his private property is constantly in danger of meeting the debts and obligations of his business.

Personal Limitations : The individual owner has to control all the aspects of his business alone. He cannot be expert in all techniques like management, sales, engineering, processes etc. Further growth and expansion of business may not be possible due to want of proper and adequate organizing power.

Small Income: In spite of all efforts, such a business can yield only a small income. The resources are limited. Many profitable ventures are ruled out.

Cannot compete with a big business: Since the business is small it cannot compete with a big business producing the same articles

Lack of continuity: A sole proprietary organization suffers from lack of continuity. If the proprietor is ill this may cause temporary closure of business, and if he dies the business may be permanently closed.

No Economies of large scale: Economies of large scale manufacturing buying and selling cannot be obtained on account of small size organization.

Division of Labour is not possible: Economies of large scale manufacturing buying and selling cannot be obtained on account of small size organization.

2) Joint Hindu Family Business: The joint Hindu family business refers to a business which is owned by the members of a Joint Hindu Family business. It is governed by the Hindu law. This form of organization is created by the law of succession the Joint Hindu Family form is a form business organization in which the family possesses some inherited property. The inheritance of property is among the male member. The share of ancestral property is inherited by a member from his father grand father and great grand father. Thus three successive generations can simultaneously inherit the ancestral property for the

purpose of running a Joint Hindu Family business, only male members are members in this business and oldest member is known as karta.

3) Partnership Business Organization: Partnership is an association of persons who agree to combine their financial resources and managerial abilities to run a business and share profits in an agreed ratio. A partnership firm can be formed with a minimum of two partners and it can have a maximum of twenty partners. (ten in case of banking business)

Definition: According to Indian partnership act 1932 defines partnership as partnership is the relation between persons who have agreed to share the profits of a business carried on by all or any one of them acting for all.

Partnership Deed: Partnership deed means an agreement among persons and lays down the terms and conditions of partnership and the rights, duties and obligations of partners.

The following points are generally covered in the deed.

1. The nature of business
2. Name of the firm and the place where its business will be carried on
3. How much capital to be contributed by each partner
4. Duties powers and obligations of all the partners
5. The ratio in which profits are to be shared
6. Method for the settlement of disputes
7. the deed has to be stamped and each partner should have a copy of it.

Registration of Firm: Registration of a partnership firm is not compulsory, but an unregistered firm suffers from certain disabilities. These disabilities made it

virtually compulsory for a firm to get registered. A partnership firm may be registered at any time. A partnership firm desiring registration applies to the registrar of firms in prescribed form along with the registration fee. The application should state the following

1. Name of the firm
2. The place of business of the firm
3. The name of other place where the firm is to on business

4. Date of admission of the partners in the firm
5. Name and permanent addresses of the partners
6. Duration of the firm

1. A partner of an unregistered firm can not file a suit against the firm or any other partner for enforcing his rights arising out of the contract
2. An unregistered firm cannot file a suit against any third part for recovery of claims.
3. Such a firm also cannot file a suit against any partner.

Types of Partners:

General Partner: All the partners who participate in the working of the firm and are responsible jointly with other partners, for all liabilities, obligations and defects of the firm are the general partners.

Limited Partners: The liability for debts of the limited partners is limited to the extent of their contributed capital. They are not entitled to interfere in the administration of the firm.

Active Partner: Active partners are those who take active part in the management and formulation of policies. Some times they get salaries in addition to the normal profits as partners.

Sleeping Partner: They do not take any active part in the business. They simply contribute their capital in the business and get their share in the profit of the firm. They are liable for all liabilities of the firm's partners.

Nominal Partner: They lend their reputed name for the company's reputation. They do not invest money and do not take any active part in the management.

Minor Partner: Minor partners are those whose age is below 18 years and associated with the business. Such partners can be allowed only with the consent of other partners. Their liability is limited to their investment only. Within six months of attaining the age of majority, they have to give public notice about their desire to sever or continue their connection with the firm.

Advantages:

Easy formation: The formation of partnership is easier as compared to joint stock companies. Voluntary mutual agreement is enough to start the partnership. Procedure for registration is simple and also registration is not compulsory.

Pooling of financial resources: A partnership commands more financial resources compared to sole proprietorship this helps in expanding business and earning more profits, if more capital is required admit more partners into the business

Pooling of managerial skills: A partnership facilitates pooling of managerial skill of all its partners, this leads to great efficiency in business operation for instance in a big partnership firm, one partner can look after and handle production function another partner can look after marketing activity and another partner can look

after marketing activity and can attend to legal and personnel problems and so on.

Less possibility of error of judgment: A problem is examined from more than one point of view, therefore the decision arrived at is likely to be sounder than in one man business.

Prompt decisions: There are limited numbers of partners who are in continuous and intimate touch with each other. Therefore prompt decisions can be taken. It can decide on a suitable course of action before it is too late.

Large Economics: As compared in individual ownership, the advantage of division of labour, specialization standardization and economics of large purchasing are more.

Sharing of risks: In a partnership business the risks are shared by all partners on a predetermined basis, this encourages partners to undertake risky but profitable business activities.

Disadvantages:

Unlimited Liabilities: Because of unlimited liability any one partner can be held liable for the whole debt of the firm. This frightens away the moneyed people. They are reluctant to join those who have ability, skill but no capital.

Short Life: After the death or retirement of any one partner, the partnership may come to an end.

Insufficient Capital: It can raise much less capital as compared to joint stock company. This prevents the expansion of the business to take advantage of increased demand.

Disagreement: Some times due to misunderstanding friction may arise between the partners which adversely affects the efficiency and expansion of the business.

Less Secrecy: A partner may withdraw from the firm and establish his own enterprise with the knowledge of the secrets of the business.

Non-Transfer of Partnership: No partner can transfer his interest in the firm to any body without the unanimous consent of other partners.

No direct relation between efforts and rewards: The profits are shared by the partners. So, there is no incentive for hard working. Sometimes it encourages lavish expenditure.

Lack of Public Confidence: As the financial matters are strictly confined to partners only, and in absence of any strict legal control over the affairs of partnership, there is much less public confidence in partnership. It creates suspension in the mind of the outsiders who are dealing with firm.

4) Co-Operative Societies: It is voluntary association of person with unrestricted membership and collectively own funds, consisting of wages earners and small producers, united on democratic basis for the establishment of enterprises under joint management for purpose of improving their household or business economy.

The main principle underlying cooperative organization is mutual help i.e. one for all and all for one. A minimum of 10 persons are required to form a co-operative society. It must be registered with the registrars of co-operative societies under the co-operative societies act.

Advantages:

Easy of Formation: A co-operative society is voluntary association and may be formed with a minimum of ten members. Its registration is very simple and can be done without much legal formalities.

Open Membership: Membership in a co-operative organization is open to all having a common interest a person can become a member at any time he likes and can leave the society by returning his shares without affecting its continuity.

Democratic Management: A co-operative society is managed in a democratic manner. It is based on the principle of one man one vote. All members have equal rights and can have a voice in its management.

Limited Liability: The liability of the members of a co-operative society is limited to the extent of capital contributed by them. They do not have to bear personal liability for the debts of the society.

Stability: A co-operative society has a separate legal existence. It is not affected by the death, insolvency of any of its members. It has a fairly stable life and continues to exist for a long period.

Economical Operation: The operation of a co-operative society is quite economical due to elimination of middlemen and the voluntary services provides by its members.

Disadvantages:

Limited Capital: Co-operatives are usually at a disadvantage in raising capital because of the low rate of return on capital invested by members.

In Efficient Management: The management of a co-operative society is generally inefficient because the managing consists of part-time and inexperienced people. Qualified managers are not attracted towards co-operative on account of its limited capacity to pay adequate remuneration.

Absence of Motivation: A co-operative society is formed for mutual benefit and the interests of individual are not fully satisfied. There is no direct link between effort and reward. Hence members are not inclined to put in their best efforts in a co-operative society.

Rigid Rules and Regulations: Excessive government regulation and control over co-operative affect their functioning. For example, a co-operative society is required to get its accounts audited by the auditors of the co-operative department and to submit its accounts regularly to the registrar.

Type of Co-operative Societies:

1) Consumer's Co-operative Society: These societies are organized by consumers to eliminate middlemen and to establish direct relations with the manufactures or wholesalers. These societies are formed by consumers to ensure a steady supply of goods and services of high quality of reasonable prices. It purchases goods either from the manufacturers or the wholesalers for sale at reasonable prices. The profit if any, is distributed among members as dividend in the in the ratio of capital contributed by them.

2) Producer's Co-operative Society: Producer's co-operative are formed to help the members in procuring inputs for production of goods or services. These societies generally provide raw material, tools and equipment and other common facilities to its members. This society provides inputs to the members and takes over their output for sale to outsiders.

3) Co-operative Marketing Societies: Co-operative marketing societies are voluntary associations of small producers, who find it difficult to individually sell

their products at a profit. The main purpose of such a society is to ensure a favorable market for the output of its members.

4) Co-operative Credit Society: This society provides financial help to the members. The funds of these societies consist of share capital contributed by

the members and deposit made by them from outsiders. The funds are utilized in giving loans to needy members on easy terms with low interest rate. Thus the member protected from the exploitation of money lenders, who charge very high rates of interest.

5) Co-operative Housing Society: This society is formed to provide residential accommodation to the members. They under take the purchase and development of land and for construction of houses/flats on the land some housing co-operatives provide their members with necessary loans at low rates of interest to build houses. These societies are gaining popularity in big cities.

Types of Companies:

1) Private Company:

- a) Has minimum of 2 and maximum of 50 members
- b) Does not invite the public to subscribe to its capital
- c) Restrict the right of members

All these three restrictions must be continuously observed by a company to be called a private company such a company can managed its affairs with a minimum of 2 directors only. It must include the work private limited as apart of its name.

- a) Has a minimum of 7 members
- b) It is not prohibited from inviting the general public to subscribe to its shares and debentures.
- c) Does not restrict the right of its members to transfer their shares freely.

In a public company, the maximum number members depends upon the numbers of share issued. A public company can managed its affairs with a minimum of 3 directors. Since the liability of members is limited these companies must add the word limited to their name large company organized as public company. Ex: BATA India Limited, MRF Tires Limited.

Government Company: A government company is which is started by government and of which majority of capital is subscribed by the Central and/or State governments. Some of the well known government companies are BHEL, HMT< Indian Oil Corporation (IOC).

- a) Operates in more than one country
- b) Carries out production marketing and research activities in those countries
- c) Attempts to maximize profits world-wide.

A multinational company is of giant size some the well known multinational companies are General Motors (USA), Sony (Japan), Coco Cola (USA), Lipton (UK), Indian MNC like TATA, BIRLA and so on.

Formation of Joint Stock Company:

1) promotion : Promotion is concerned with bringing a business into existence. It involves identification of some business opportunity of idea and taking steps to implement it through the incorporation and floatation of a company. The person who identify a business idea and under take to start a company to give a practical shape to the idea are known as promoters. The process of promotion begins when the promoters feel that business activity can be profitable undertaken by a company

Promoter: The promoter role is vital role in company business, which steps he can take to form a company with reference to the business opportunity.

a) Selling a product by new methods

b) Manufacturing a product by new

method c) Introducing a product with new

uses d) Introducing a new type of package

2) Incorporation or Registration: A company comes into existence only when it registered with the registrar of companies under companies' act 1956, the stage followed by two sub stages.

Filling of documents: The promoter takes an application for the incorporation of the company. The application must be submit to the registrar of companies in the state in which the registered office of the company is to be situated and accompanied by the following documents.

1. Memorandum of Association

2. Articles of association

3. Written consent of the persons who have agreed to become director of the company

4. Notice of address of the registered office of the company. It may however be filed with in 30 days of incorporation.

5. A statutory declaration stating that all the legal requirements of the companies act with regard to incorporation have been complied with this declaration may be made by the company secretary, managing director, a chartered account, advocates of high court or any other person associated with formation of the company before filling the above documents necessary filing fees and

registration fees at the prescribed rates are also to be deposited.

Certificate of Registration: The registrar will scrutinize the above documents. If he is satisfied he will enter the name of the company in the register of companies and will issue a certificate of registration. The certificate of incorporation bears the serial number, date of incorporation and signature and seal of the registrar at companies.

A private company or a public not having share capital can commence business immediately after its incorporation. But a public company having share capital has to pass, through another stage, namely, flotation stage, before actually starting its business operation.

3) Floatation: Floatation of a company means to get it going, for this purpose public company has pass through two sub stages, namely

Raising Capital: It is also known as capital subscription stage, in this stage leads to rising of necessary capital for meeting the financial requirements of the company. In order to raise capital, the director the company has to take the following steps

1. Permission from Securities Exchange Board of India of India (SEBI) for rising capital from public.
2. Filling of Prospectus
3. Allotment of Shares

Commencement of Business Certificate: A public company cannot start its business operations unless it has obtained the certificate of commencement of business from the registrar of companies.

1) Memorandum of Association: The memorandum of association is the principle document of the company. It is its constitution and sets out the limits with in which the company must always function. The purpose of the memorandum is to enable the shareholders and outsiders who deal with the company to known the range of activities of the company. It is a public document and the parties dealing with a company may ask for its copies on payment of a nominal charge. This document contains following clauses:

Name Clause: Under this clause, the name of the company is stated. The name of the company end with limited in case of public company and private limited in case of private company.

Registered Office Clause: This clause contains the name to the state in which the registered office of the company is to be situated.

Object Clause: The objectives of the company, in the short run and long run, are furnished here. The promoters should take special care to draft the objects clause in particular. The objects should be drafted in such a way that they provide high degree of operational freedom.

Liability Clause: The clause state that liability of members is limited to the amount, which they have agreed to, contributed. This tells the outsiders as to how far can hold the members liable for the debts of the company.

Capital Clause: Every company having share capital must state the amount of its share capital with which the company is proposed to be register. It is also required to state the division of share capital into shared of fixed denomination.

Subscription Clause: Here a declaration has to be made the 'the persons signing this clause have interest to form this company and they have taken the number of shares as indicated against their name.

2) Articles of Association: The articles of association of a company contain the rules relating to the administration of its internal affairs, they define the duties, rights and powers of the management.

Content of Articles of Association: The articles of association of a company contain rules, regulation and by-laws for the management of the internal affairs of the company. Some of the more important matter are listed below.

1. The amount of share capital and different classes of shares
2. Rights of each class of shareholders
3. Procedure for making allotment of shares
4. Procedure for transfer to share
5. Procedure for issuing share certificate
6. Procedure for the conducting of meeting
7. Appointment, removal and remuneration of directors and their powers and duties

8. Procedure regarding alteration of share capital

9. Matters relating to distribution of dividend

10. Procedure regarding the winding up of the company

3) Prospectus: A prospectus may be defined as notice, circular, advertisement or any other document inviting offers from the public for the purchase of its shares or debentures or for making deposits with it. Thus, a company issues a prospectus to the public to raise funds.

Public Sector Enterprises: A public sector enterprise or a public enterprise is one which is owned, managed and controlled by the Central Government or any state Government or any Local authority.

Objectives:

- .
• To bring about rapid industrial development by setting up large industries which require huge capital investment and may not be profitable in the short-run
- .
• To develop those industries which facilitate the growth of other industries like transport, power generation
- .
• To correct regional imbalance in the growth of industries
- .
• To ensure adequate supply of essential goods at a fair price

Public sector enterprises are classified as follows:

1) Department Undertakings: Departmental undertakings is a public enterprises which is organized, controlled and financed by the government in the same way as any other government department. For example, Railways, Post and Telegraphs, Public work department etc.

Advantages:

Easy to form: It is easy to form such undertaking since no registration or special legislation is required to bring it into existence.

Easy to financing: It is wholly and directly financed through annual budget appropriations from the concerned ministry.

Secrecy: It is suitable where secrecy and control is very important such as atomic energy, defense industries.

Accountability to people through Parliament: The overall responsible rests with the minister under whose ministry the undertaking function, the concerned minister is answerable to the Parliament for the efficient operation of the undertaking. Any matter relating to such undertaking can be raised in the parliament.

Disadvantages:

Lack of flexibility: Departmental undertaking suffers from lack of flexibility since it is subject to rigid rules and regulations of government which do not allow any flexibility in the operations of the undertakings

Lack of professional Management: It also suffers from lack of professional management since the civil servants who manage it do not possess business experience and professional skill necessary for the management of a business.

Lack of quick decision making: It also suffers from lack of quick decision making, since it runs on bureaucratic lines where number of files are handled by several persons.

Low efficiency: It is not managed very efficiently due to lack of initiative on the part of the managers

2) Public Corporation: Public corporation is an autonomous organization, which is established by a special act of the center or State Legislature. This special act defines its powers duties, functions, immunities and the pattern of management. It is also known as statutory corporation.

Ex: LIC, Air India, SBI and etc.

Advantages:

Operational Autonomy: Public corporation works as an autonomous body within the provisions of the special Act. It enjoys considerable degree of autonomy, as there is no government interference in day-to-day affairs.

Public Accountability: The management keeps public interest in mind while functioning since it is accountable to the public through the legislature.

Flexibility in Operation: It enjoys flexibility in operations since it is not subject to budget audit and accounting procedures of the government

Easy to raise funds: It can easily raise funds by issuing bonds since it is government owned statutory body.

Disadvantages:

Lack of autonomy in practice: The autonomy available in the eyes of law is not in practice enjoyed by public corporation. Most of the decisions are required to be taken in consultation with the concerned ministry.

Unresponsive towards consumers interest: Since public corporations do not have to face any competition, they ignore commercial principles in their working. This may ultimately lead to inefficiency and losses to the corporation and neglect of consumer needs.

Difficulty in changing the act: It is usually difficult to bring a change in the act since a lot of procedural formalities are required to bring the changes and to get the changes approved.

3) Government Company: Any company in which not less than 51% of the paid up capital is held by central government or by any state government or government or partly by central government and partly by one or more of the state government and includes a company which is subsidiary of government company as thus defined.

Advantages:

Formation is easy: There is no need for an act in legislature or parliament to promote a government company. A government company can be promoted as per the provisions of the companies act, which is relatively easier.

Separate legal entity: It retains the advantages of public corporation such as autonomy, legal entity

Facilitates acquisition of private units: It facilitates the acquisition of private units by acquiring at least 51% of paid-up capital of such units.

Easy to amend documents: It can amend its memorandum and articles by following the procedure laid down in the companies act, no approval of parliament is required for such amendment.

Facilitates private participation: This form of organization facilitates the private participation in the equity of public enterprises.

Disadvantages:

Lack of accountability: The government company evades constitutional responsibility because it is not subject to scrutiny of the parliament.

Absence of Real Autonomy: There is absence of real autonomy since the majority of directors are nominated by the government to represent the various

ministries. The Board of Directors is required to consult the concerned government department on various policy matters.

Lack of professional skill and experience: Majority of the directors nominated by the government do not possess professional skill and experience required for managing commercial enterprises. As a result, it fails to achieve efficiency as required in private enterprise.

Lack of continuity in policies and Management: There is no continuity in policies and management since the management and chairman of these companies keep

on changing and as a result the policies are also subject to change by these top officials.

Fear of public accountability: The top management may not take the initiative in entering into new areas of activities since they have the fear of public accountability.

Liberalization: It is the process of freeing the among from the licensing. It measures taken since 1991 as following

1) Trade and Capital flow reforms:

Devaluation of Indian, rupee

Introduction of convertibility of the rupees on trade account and later, current account

Allowing foreign equity participation up to 51 percent in service areas
Delinking technology transfer from equity investment as a measure of

flexibility in the choice of technology

Foreign companies could bring patented products for sale to India, they are now eligible for appointment as technical advisor or management consultants.

2) Industrial Deregulation: The industrial sector, which was tied up by many regulations, such as the MRTP act, etc., was free by appropriate deregulation in the new industrial policy 1991.

3) Financial sector reforms:

a) Financial sector reforms:

To activate and mode rise banking operations in the country

To enable financial institution, including banks, to seize upon and avail of the emerging opportunity resulting from economic reforms.

b) Financial sector reforms:

India owned both life and other insurance business India. The LIC and General Insurance Corporation (GIC) of India along with its four subsidiaries were the major players after than insurance sector opened to private players.

Privatization: It mean inducing private ownership in state owned public enterprises with a strategy to reduce the role of government in business. Privatization does not necessarily involve a change in ownership. A public

enterprise is said to be privatized if private management and control figure on the board of directors.

Globalization: It means integrating the economy of a country with the world economy with a view to eliminating supply bottlenecks, improving investment climate, providing a wide choice of quality goods and services to the ultimate consumers. Through globalization India can attract huge foreign direct investment in different sectors of the economy including infrastructure.

Changing business environment to post liberalization scenario:

- 1) Attention to world market
- 2) Improvement in work culture
- 3) Focus on capital intensive technology
- 4) Downsizing and rightsizing
- 5) Awareness and stress on quality and R & D
- 6) Scale Economies
- 7) Aggressive brand building

UNIT – 5

INTRODUCTION TO FINANCIAL ACCOUNTING & FINANCIAL ANALYSIS

Accounting Definition: Accounting is a process of identifying, measuring and communicating economic information to permit informed judgments and decisions by the users of the information.

Accounting Concepts:

6. Business Entity Concepts: Every business has a separate and distinct legal entity. Business records are separated from its owners, proprietors. Also, there should be clear distinction between personal transactions and business transaction.
7. Money measurement Concepts: Only the transactions that can be expressed in terms of money are recorded in the books of account.
8. Going Concern Concept: Every business enterprise will continue to operate forever. It not going to be liquidated or closed down in near future due to the death of owners or insolvency. Because of this assumption, the market price of assets become irrelevant and the concept of depreciation of fixed assets is exists.
9. Cost Concept: The asset is recorded at the cost at which they are acquired i.e. market values are ignored. The assets are shown as original cost less depreciation.
10. Realization/Accrual Concepts: The revenue is generated when actual sale is realized. For example, when a firm sells goods on March 31st 2009 on credit and if it receives cash from customer on April 22nd 2009 then the sale revenue is recognized in the month of April 2009.
11. Accounting Period Concept: Accounts are to be prepared for a defined period i.e. economic life of an enterprise must be divided into intervals called period accounting.
12. Matching Concept: The expenses of a given period must be related to the revenue during that period only.
13. Dual Aspect Concept: Every transaction has dual effects in the books i.e. it is recorded in the assets side as well as in the liability side.

Accounting Conventions:

2) Full Disclosure: The financial statement must disclose all the necessary and relevant information off course the information should be reliable also.

3) Consistency: Standard practices, rules and policies of accounting should be followed consistently over the years.

4) Materiality: Only the material information should be recorded. Immaterial or information that is not at all useful must not be recorded.

5) Conservatism (Prudence): This is the policy of safe playing i.e. in the books no profit are anticipated but all possible losses are accounted.

Accounting Terminology:

3) Business: It is an activity which involves exchange of goods or services with the intension of earning income and profit.

4) Business transaction: Any exchange of money or money's worth as goods and services between two parties is called business transaction.

a) Cash transaction: when payment for business activity is made immediately, it is called a cash transaction.

b) Credit transaction: When payment is postponed to a future date, it is called credit transaction.

5) Capital: It is the amount invested by the proprietor in the business

6) Drawings: It is the value of cash or goods with drawn from the business by the owner for his personal use.

7) Goods: It reeferes to commodities, articles, things in which a trader deals.

8) Debtor: A debtor is a person who owes something/money to the business

9) Creditor: A creditor is a person to whom the business owes money.

10) Expenses: It is the amount spent in conducting business activities. It is the expenditure, in return for some benefit.

11) Loss: A loss is an expenditure without any benefit to the concern

12) Income: It refers to the earnings of a business. It includes the sales of goods, interest received, commission received etc.

13) Debit: The left hand side of the account

14) Credit: The right hand side of the account

15) Asset: All such items that have value are known as assets. It refers to what a business owns, namely its plant, machinery, furniture, land and so on.

16) Tangible fixed assets: Tangible fixed assets can be touched and seen. Example are plant, machinery. etc.

17) Intangible fixed asset: such fixed assets that cannot be seen or touched are called intangible fixed assets. Ex: Trade mark, Patent rights

18) Current Asset: Current assets are expected to be realized in cash or consumed during business operations.

4) Bills Receivable: These refer to the acceptances received from the customers or business parties to pay an agreed amount of money. Acceptances received are called bills receivable.

5) Liabilities: What the firm has to pay legally, they are called liabilities. In other words, it refers to what the firm owes to outsiders.

6) Bills Payable: The acceptances given to the suppliers of goods or other business parties to pay an agreed amount of money are called bills payable. Acceptances given are called bills payable. Bills payable constitute part of current liabilities.

7) Overdraft: The facility sanctioned by a banker to a customer to draw more than what is deposited in the account, subject to a maximum limit of money is called overdraft. It may be for a short period or for a long period.

8) Outstanding expenses: These refer to the expenses yet to be paid.

9) Current liability: Current liabilities are those which are payable in the near future say less than an year.

10) Sales: Sales refer to the value of goods or services sold during a given accounting period sales may be cash or credit sales. In credit sales, the debtor promises to pay the firm at a future date.

11) Purchases: Purchases refer to the value of goods or services purchased during a given accounting period. Purchases may be cash purchases or credit purchases. In credit purchases, the firm agrees to pay the amount to the supplier at a future date.

12) Double-entry Book Keeping: This is a system of book-keeping where for every debit, there is a corresponding credit.

Types of Account and its rules:

8. Personal Accounts: Personal accounts indicate about the persons and firms.

4. Real Account: Real accounts indicates about all assets

7. Nominal Account: Nominal accounts indicate about expenses, losses, incomes and gains.

Rule: Debit all losses and expenses

 Credit all incomes and gains

Journal: This called the “Book of prime entry. The word journal is derived from the Latin word journ, which means a day. Hence, journal is also termed as a daybook wherein the day-to-day transactions are recorded in chronological order.

Journal Entry: The process of recording the business transactions in the journal is know as journalizing to divide business transactions into two aspects and recording I the journal is called journal entry. The first one is debit aspect and second one is credit aspect.

4. Journalizing the transactions given below in the books of Prasad.

Date Particulars 2008

- Jan 1 Prasad commenced business with cash Rs.30,000
- 5) Cash sales Rs.4,000
- 5) Bought machinery RS.15,000
- 7 Sold goods to Raju Rs.10,000
- 9 Purchased goods from Ramana Rs.8,000
- 10 Goods returned by Raju Rs.5,000
- 12 Paid for stationery Rs.1,000
- 6) Carriage expenses Rs.500
- 7) Bought furniture for proprietor's residence and paid cash Rs.7,000

- d) Sold goods to Krishna for cash Rs.3,000
- d) Received discount Rs.800
- d) Paid for wages Rs.1,200
- e) Deposited cash with bank Rs.10,000
- 2) Goods return to Ramana Rs. 2,000

Solution:

Journal Entries in books of Prasad for year ending 30th June 2008

| Date | Particulars | L | Debit | Credit |
|----------------|---|---|--------|--------|
| | | F | Rs. | Rs. |
| 2008 June 1 | Cash A/C Dr To Capital A/C (Being business Commenced) | | 30,000 | 30,000 |
| 2 | Cash A/C Dr To Sales A/C (Being goods sold for cash) | | 4,000 | 4,000 |
| 4 | Machinery A/C Dr To Cash A/C | | 15,000 | 15,000 |
| 7 | Raju A/C Dr To Sales A/C | | 10,000 | 10,000 |

| | | | | |
|----|---|--|-------|-------|
| | (Being goods sold to raju for cash) | | | |
| 9 | Purchases A/C Dr To Ramana A/C (Being goods purchases from Ramana) | | 8,000 | 8,000 |
| 10 | Sales returns A/C Dr To Raju A/C (Being goods returned by raju) | | 5,000 | 5,000 |
| 12 | Stationery A/C Dr To Cash A/C (Being Stationery purchased for cash) | | 1,000 | 1,000 |
| 14 | Carriage Expenses A/C Dr To Cash A/C (Being carriage expenses paid) | | 500 | 500 |
| 15 | Drawings A/C Dr To Cash A/C (Being goods used for his personal use) | | 7,000 | 7,000 |
| 17 | Cash A/C Dr To Sales A/C (Being goods sold for cash) | | 3,000 | 3,000 |

| | | | | |
|----|---|----|--------|--------|
| 22 | Cash A/C To Discount received A/C (Being discount received) | Dr | 800 | 800 |
| 24 | Wages A/C To Cash A/C (Being wages paid by cash) | Dr | 1,200 | 1,200 |
| 25 | Bank A/C To Cash A/C (Being cash deposited with bank) | Dr | 10,000 | 10,000 |
| 30 | Ramana A/C To Purchase returns A/C (Being goods return to Ramana) | Dr | 2,000 | 2,000 |

6. Journalise the following transactions, post them in the ledger and balance the accounts on 31st January.

John started business with a capital of RS.10,000

He purchased goods from Mohan on credit of Rs.2,000

He paid cash to Monhan Rs.1,000

He sold goods to Suresh Rs.2,000

He received cash from Suresh RS.3,000

He further purchased goods from Mohan Rs.2,000

He paid cash to Monhan Rs.1,000

He further sold goods to Suresh Rs.2,000

He received cash from Suresh Rs.1,000

Solution:

Journal Entries

| Date | Particular | L.F | Debit Rs. | Credit Rs. |
|------|---|-----|--------------|---------------|
| 1 | Cash A/C Dr To Capital A/C (Being commencement of business) | | 10,000 | 10,000 |
| 2 | Purchase A/C Dr To Monhan A/C (Being purchase of goods on Credit) | | 2,000 | 2,000 |

| | | | | |
|---|--|----|-------|-------|
| 3 | Mohan A/C To Cash A/C (Being paymen of cash to Mohan) | Dr | 1,000 | 1,000 |
| 4 | Suresh A/C To Sales A/C (Being goods sold to suresh) | Dr | 2,000 | 2,000 |
| 5 | Cash A/C To Suresh A/C (Being cash received from Suresh) | Dr | 3,000 | 3,000 |
| 6 | Purchase A/C To Mohan A/C (Being purchase of goods from Mohan) | Dr | 2,000 | 2,000 |
| 7 | Mohan A/C To Cash A/C (Being payment of cash to Mohan) | Dr | 1,000 | 1,000 |

| | | | | |
|---|--|--|-------|-------|
| 8 | Suresh A/C Dr To Sales A/C (Being goods sold to suresh) | | 2,000 | 2,000 |
| 9 | Cash A/C Dr To Cash A/C (Being cash received from Suresh) | | 1,000 | 1,000 |

Ledger: The ledger is the principal book of accounts where similar transaction relating to a particular person or thing is recorded.

It is book of final entry. All business transactions are first recorded in journal and final recorded in the ledger. The process of transferring the transactions from journal to the ledger is called as posting.

Dr Cash A/C Cr

| Date | Particulars | JF | Amount | Date | Particulars | JF | Amount |
|-------|----------------|----|--------|--------|----------------|----|--------|
| Jan-1 | To Capital A/C | | 10,000 | Jan-3 | By Mohan A/C | | 1,000 |
| Jan-5 | To Suresh A/C | | 3,000 | Jan-7 | By Mohan A/C | | 1,000 |
| Jan-9 | To Suresh A/C | | 1,000 | Jan-31 | By Balance c/d | | 12,000 |
| | | | 14,000 | | | | 14,000 |
| Feb-1 | To Balance b/d | | 12,000 | | | | |

Dr Capital A/C Cr

| Date | Particulars | JF | Amount | Date | Particulars | JF | Amount |
|--------|----------------|----|--------|-------|----------------|----|--------|
| Jan-31 | To Balance c/d | | 10,000 | Jan-3 | By Cash A/C | | 10,000 |
| | | | 10,000 | | | | 10,000 |
| | | | | Feb-1 | By Balance b/d | | 10,000 |

Dr Purchase A/C Cr

| Date | Particulars | JF | Amount | Date | Particulars | JF | Amount |
|-------|--------------|----|--------|------|-------------|----|--------|
| Jan-2 | To Mohan A/C | | 2,000 | | | | |

| | | | | | | | |
|-------|----------------|--|-------|--------|----------------|--|-------|
| Jan-6 | To Mohan A/C | | 2,000 | Jan-31 | By Balance c/d | | 4,000 |
| | | | 4,000 | | | | 4,000 |
| Feb-1 | To Balance b/d | | 4,000 | | | | |

Dr

Mohan A/C

Cr

| Date | Particulars | JF | Amount | Date | Particulars | JF | Amount |
|--------|----------------|----|--------|--------|------------------|----|--------|
| Jan-3 | To Cash A/C | | 1,000 | Jan-2 | By Purchases A/c | | 2,000 |
| Jan-7 | To Cash A/C | | 1,000 | Jan-6 | By Purchases A/C | | 2,000 |
| Jan-31 | To Balance c/d | | 2,000 | Jan-31 | | | |
| | | | 4,000 | | | | 4,000 |
| Feb-1 | To Balance b/d | | 4,000 | | | | |

Dr

Suresh A/C

Cr

| Date | Particulars | JF | Amount | Date | Particulars | JF | Amount |
|-------|---------------|----|--------|-------|-------------|----|--------|
| Jan-4 | To Sales A/C | | 2,000 | Jan-5 | By Cash A/C | | 3,000 |
| Jan-8 | To Suresh A/C | | 2,000 | Jan-9 | By Cash A/C | | 1,000 |
| | | | 4,000 | | | | 4,000 |

Dr

Sales A/C

Cr

| Date | Particulars | JF | Amount | Date | Particulars | JF | Amount |
|--------|----------------|----|--------|-------|----------------|----|--------|
| Jan-31 | To Balance c/d | | 4,000 | Jan-4 | By Suresh A/C | | 2,000 |
| | | | 4,000 | Jan-8 | By Suresh A/C | | 2,000 |
| | | | | Feb-1 | To Balance b/d | | 4,000 |

Trial Balance: After posting the accounts in the ledger, a statement is prepared to show separately the debit and credit balances. Such a statement is called as the trial balance. Trial balance is prepared to verify the arithmetical accuracy whether the total debit and credit are equal or not.

4) From the following information prepare the trial balance

| Sl.No. | Particulars | Amount |
|--------|-------------------|--------|
| 1 | Capital | 42,100 |
| 2 | Furniture | 800 |
| 3 | Discount received | 800 |
| 4 | Bad debts | 1,000 |
| 5 | Drawings | 900 |
| 6 | Purchases | 17,620 |
| 7 | Rent Paid | 1,120 |
| 8 | Sales | 35,320 |
| 9 | Creditor | 1,800 |
| 10 | Sales returns | 400 |
| 11 | Purchases returns | 600 |
| 12 | Advertisement | 500 |
| 13 | Salaries | 1,800 |
| 14 | Investments | 1,125 |
| 15 | Discount allowed | 100 |
| 16 | Cash in hand | 14,175 |
| 17 | Cash at bank | 41,600 |
| 18 | Discount received | 520 |



Solution:

TRIAL BALANCE

| Sl.No | Particulars | LF | Debit Amount | Credit Amount |
|-------|-------------------|----|-----------------|------------------|
| 1 | Capital | | - | 42,100 |
| 2 | Furniture | | 800 | - |
| 3 | Discount received | | - | 800 |
| 4 | Bad debts | | 1,000 | - |
| 5 | Drawings | | 900 | - |
| 6 | Purchases | | 17,620 | - |
| 7 | Rent Paid | | 1,120 | - |
| 8 | Sales | | - | 35,320 |
| 9 | Creditor | | - | 1,800 |
| 10 | Sales returns | | 400 | - |
| 11 | Purchases returns | | - | 600 |
| 12 | Advertisement | | 500 | - |
| 13 | Salaries | | 1,800 | - |
| 14 | Investments | | 1,125 | - |
| 15 | Discount allowed | | 100 | - |
| 16 | Cash in hand | | 14,175 | - |
| 17 | Cash at bank | | 41,600 | - |
| 18 | Discount received | | - | 520 |
| | | | 81,140 | 81,140 |

Final Accounts: Final accounts mean accounts which are prepared at the final stage to give the financial position of the business. The financial position is judged by means of preparing a balance sheet of the business. The balance sheet is prepared from the trading and profit and loss account or income statement. Thus the final account is constituted with income statement and balance sheet. These are

Trading Account

Profit and Loss Account/Income statement

Balance Sheet

4) Trading Account: Trading account shows the effect of buying selling of goods/services during an accounting period. The statement indicates gross profit or gross loss

Gross profit = Net sales – Cost of goods sold

Proforma:

Dr

Trading A/C

Cr

| Particulars | Amount | Amount | Particulars | Amount | Amount |
|------------------|--------|--------|-------------|--------|--------|
| To Opening Stock | | ----- | By Sales | ----- | |
| To Purchases | ----- | | Less: Sales | ----- | ----- |
| | | | ----- | | |
| Less: Purchase | ----- | ----- | Returns | ----- | |
| ----- | | | | | |
| Returns | | | | | |

| | | | | | |
|-----------------------|--|-------|------------------|--|-------|
| To Wages | | ----- | By Closing stock | | ----- |
| To Freight | | ----- | | | |
| To Carriage inwards | | ----- | | | |
| To Gross Profit | | ----- | | | |
| (Transfer to P/L A/C) | | ----- | | | |
| | | ----- | | | ----- |

(Transfer to B/S)

| | | | | | |
|--|--|-------|--|--|-------|
| | | | | | |
| | | ----- | | | ----- |

3) Balance Sheet: It shows the financial positions of the business on a particular date. On left hand side of balance sheet shows total liabilities and on the right hand side total assets of business is shown. The balance sheet of a company shall be either in a horizontal form or a vertical form. Horizontal form is most widely accepted by the company.

Proforma:

Dr Balance Sheet Cr

| Liabilities | Amount | Amount | Assets | Amount | Amount |
|----------------------|--------|--------|---------------------|--------|--------|
| Capital | ----- | | Plant | ----- | |
| Add: Net profit | ----- | | Less: Depreciation | ----- | ----- |
| ----- | ----- | | ----- | ----- | |
| Less : Drawing | ----- | ----- | Machinery | ----- | |
| ----- | ----- | | Less : Depreciation | ----- | ----- |
| Over draft | | ----- | ----- | ----- | |
| Sundry creditors | | ----- | Furniture | ----- | |
| Bills payable | | ----- | Less : Depreciation | ----- | ----- |
| Outstanding expenses | | ----- | ----- | ----- | |
| | | | Stock | | ----- |
| | | | Sundry Debtors | ----- | |

| | | | | | |
|-------|--|-------|------------------|-------|-------|
| | | | Less: Bad debts | | ----- |
| | | | ██████ | ----- | |
| | | | Bills receivable | ----- | ----- |
| | | | Cash in hand | ----- | ----- |
| | | | Cash at bank | ----- | ----- |
| | | | Prepaid expenses | ----- | ----- |
| Total | | ----- | Total | | ----- |

Adjustments:

4) Outstanding Expenses or Accrual Expenses: In of outstanding expense, it must be added to the concerned account in trading or profit and loss account and again this item should be shown in the balance sheet liabilities.

5) Prepaid Expenses: In case any of the expenses is prepaid, it must be deducted from the concerned head in trading or P/L account. Again, it will be show in balance sheet as an asset.

6) Provision for depreciation: Depreciation refers to the reduction in value of the asset. It must deduct from the concerned asset. Again, it will be shown in the profit loss account.

$$\text{Depreciation} = \frac{\text{Cost of asset} - \text{Scrap value}}{\text{life of asset}}$$

2) Closing Stock: In case closing stock, it must be shown in trading account, again it is shown in balance sheet asset side.

3) Provision for Bad Debts: A bad debt is debt, which is irrecoverable, and hence it will be written off as a loss. It must be deducted from debtors and again it shown in profit and loss account debit side.

4) Income received in advance or Unearned income: This appears as z deduction from the concerned income in profit and loss account and again in balance sheet as liability.

Problems:

4) From the following trial balance and adjustments of Suresh, prepare trading and profit and loss account for the year ending 30th June, 2006 and balance sheet as on that date.

Trial Balance

| Particulars | Debit Rs. | Credit Rs. |
|------------------------------|--------------|---------------|
| Suresh's Drawings | 14,000 | |
| Furniture | 5,200 | |
| Land and buildings | 40,000 | |
| Opening Stock | 44,000 | |
| Debtors | 37,200 | |
| Purchases | 2,20,000 | |
| Sales returns | 4,000 | |
| Discounts | 3,200 | |
| Taxes and insurance | 4,000 | |
| General expenses | 8,000 | |
| Salaries | 18,000 | |
| Commission | 4,400 | |
| Carriage | 3,600 | |
| Bad debts | 1,600 | |
| Suresh capital | | 60,000 |
| Bank overdraft | | 8,400 |
| Creditors | | 31,600 |
| Rent from tenants | | 2,000 |
| Sales | | 3,00,000 |
| Discounts | | 4,000 |
| Provision for doubtful debts | | 1,200 |

| | | |
|--------|----------|----------|
| Total: | 4,07,200 | 4,07,200 |
|--------|----------|----------|

Adjustments:



- c) Closing stock Rs.70,000
- d) Write off depreciation Rs.10% per annum on land and buildings
- e) Taxes yet to be paid Rs.200
- f) Prepaid salaries Rs.1,000
- g) Provision for bad debts Rs.600
- h) Rent received in advance Rs.1000

| | | | | | |
|------------------------------------|------|----------|------------|-------|----------|
| To Discount allowed | | 4,000 | in advance | 1,000 | 1,000 |
| To Depreciation on land | | 1,800 | | | |
| To Bad debts | 1600 | | | | |
| Add: Bad debts new | 200 | 3,200 | | | |
| To Advertising | | 4,400 | | | |
| To Commission | | 62,200 | | | |
| To Net Profit (Transfer to B/S) | | | | | |
| | | 1,04,600 | | | 1,04,600 |

Dr Balance Sheet A/C of Mr.Suresh for year ending of 30th June, 2006 Cr

| Liabilities | Amount | Amount | Assets | Amount | Amount |
|--------------------------|----------|----------|--------------------|--------|----------|
| Capital | 60,000 | | Land & Building | 40,000 | |
| Add: Net profit | 62,000 | | Less: Depreciation | 4,000 | 36,000 |
| _____ | | | _____ | | |
| | 1,22,000 | | | | |
| Less : Drawing | 14,000 | 1,08,000 | Stock | | 70,000 |
| _____ | | | | | |
| | | | Sundry Debtors | 37,200 | |
| Over draft | | 8,400 | Less : Bad debts | 200 | 37,000 |
| | | | _____ | | |
| Sundry creditors | | 31,600 | | | |
| Outstanding Tax | | 200 | Furniture | | 5,200 |
| Rent received in advance | | 1,000 | Prepaid Salaries | | 1,000 |
| | | | | | |
| Total | | 1,49,200 | Total | | 1,49,200 |

FINANCIAL ANALYSIS THROUGH RATIOS

Ratio Analysis: Ratio analysis is the process of determining and interpreting numerical relationships based on financial statements. By computing ratios, it is easy to understand the financial position of the firm. Ratio analysis is used to focus on financial issues such as liquidity, profitability and solvency of a given firm. There are classified into four types

Liquidity Ratio: These ratios refer to the ability of the firm to meet the short term

obligations out of its short term resources. Those ratios helps to determines the solvency of the firm. Again it classified into two types

Current Ratio: Current ratio is the ratio of current assets and current liabilities. Current ratio is also called as working ratio. Current ratio measures a company's ability to meet the claims of short-term creditors by using only current assets

This firm is said to be comfortable in its liquidity position when current ration is 2:1. But the industry norm for current ratio is 2:6

$$\text{Current Raio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Quick Ratio: Quick ratio measures the firm's ability to convert its current assets quickly into cash to meet its current liabilities. It is also called as acid-test ratio

$$\text{Quick Raio} = \frac{\text{Quick Assets}}{\text{Current Liabilities}}$$

$$\text{Quick assets} = \text{Current asset} - (\text{Stock} + \text{Prepaid expenses})$$

Quick ratio indicates the ability of a firm to meet its short term obligations with short-term assets. The standard fro this ratio is 1:1

Solvency Ratio: It is also called as leverage ratio. The solvency ratios are financial ratios that asses the extent to which an organization uses debt to finance investments an the degree to which it is able to meet long term obligation.

It is classified into 1) Debt-Equity ratio 2) Interest coverage Ratio Debt-Equity Ratio: Debt equity ratio is the ratio of outsider's fund (debt) and insider's fund (Equity). It reflects the proportion of borrowed capital and owners capital in financing the assets of a firm. The debt-equity ratio is calculated as

$$\text{Debt - Equity Raio} = \frac{\text{Debt}}{\text{Equity}}$$

Debt : Debentures, Long-term loans and public deposits

Equity: Equity share capital , Preference share capital and Reserves

A debt-equity ratio means less risk to the creditors. It shows that the owners of business have invested more and borrowed funds are less. This is an advantageous situation from creditor's point of view since it reduces risk of creditors. Ideal value of D/E ratio is 1:1

Interest Coverage Ratio: Interest coverage ratio indicates the firm's capacity to pay the interest on debt it borrows. The interest coverage ratio is calculated as.

$$\text{Interest Coverage Raio} = \frac{\text{Net Pr ofit before Interest and Taxes}}{\text{Interest}}$$

Interest coverage ratio helps in determining the extent to which the net profit before interest and taxes can drop but meet the claims of long-term creditors. High ratio indicates that the firm has ability to take care of its creditors promptly i.e. no problem in paying the interest.

Profitability Ratios: Profitability ratio are financial ratios that help measure managements ability to control expenses and each profits through the use of organizational resources. These are classified as follows

Gross Profit ratio: The ratio expresses relationship between gross profit and net sales during a given period. It is expressed in terms of percentage. Gross profit is the difference between the net sales and the cost of goods sold.

$$\text{Gross Pr ofit Raio} = \frac{\text{Gross Pr ofit}}{\text{Sales}} \times 100$$

Net Profit: Net profit ratio is the ratio between net profits after taxes and net sales. It indicates what portion of sales is left to the owners after operating expenses.

$$\text{Net Profit Raio} = \frac{\text{Net Profit}}{\text{Net Sales}} \times 100$$

It net profit is high, it means tht the owners will get enough returns on their investment and firm can sustain in adverse economic conditions.

Operating Ratio: Operating ratio is the ratio between costs of goods sold plus operating expenses and the net sales. This is expressed as a percentage to net sales. The higher the operating ratio, the lower is the profitability and vice versa.

$$\text{Operating Raio} = \frac{\text{Operating Expenses}}{100 \text{ Net Sales}} \times$$

Operating expenses = (Cost of goods sold + Administrative expenses + Selling and distribution expenses)

In interpreting operating ratio, the possibility of variations in expenses from year to year or company to company due to change in policies should be considered

$$\text{Profitability (\%)} = (100 - \text{Operating (\%)})$$

Earnings Per Share (EPS): Earnings per share given, better understanding of profitability of a firm. EPS gives a measure of profit on equity share holder gets on each share held by them

$$\text{EPS} = \frac{\text{Net Profit after Tax}}{\text{Number of shares outstanding}}$$

Generally, higher EPS is better for an organization and vice-versa.

Price/Earning Ratio: This is the share price divided by the earnings per share.

$$\text{Price/ Earning Raio} = \frac{\text{Market Value per Share}}{\text{EPS}}$$

P/E ratio reflects the current price in the market for each rupee of EPS,

Activity Ratio: Activity ratios express how active the firm is in terms of selling its stocks, collecting its receivables and paying its creditors. These are three types.

Inventory or Stock Turnover Ratio: Inventory turnover ratio indicates the number of times the average inventory is sold during any given accounting period. This ratio is used to test the effectiveness of inventory management.

$$\text{Inventory Turnover Ratio} = \frac{\text{Cost of goods sold}}{\text{Average inventory}}$$

Cost of goods sold = Sale – Gross Profit

Or

Opening Stock + Selling expenses + Administration
expense – Closing Stock

$$\text{Average Stock} = \frac{\text{Opening Stock} + \text{Closing Stock}}{2}$$

A high inventory turnover ratio implies the efficiency of the firm whereas a low inventory turnover ratio indicates the firm is not in a position to clear its stocks.

Example: A firm sold worth RS.5,00,000 and its gross profit is 20 percent of sales value. The inventory at the beginning of the year was Rs.16,000 and at end of the year was 14,000. Compute inventory turnover ratio and also the inventory holding period.

Cost of goods sold = Sale – Gross Profit

Gross Profit = 20% of sales value, i.e., Rs.1, 00,000

Cost of goods sold = 5, 00,000 – 1, 00,000

= 4, 00,000

Average Stock = $\frac{\text{Opening Stock} + \text{Closing Stock}}{2}$

= (16,000 + 14,000)/2

= 15,000

Inventory turnover ratio = 4, 00,000/15,000

= 26.66 times

Inventory holding period = 365 days/Inventory turnover ratio

14. 365/26.66

15. 13.69 days

Debtors Turnover Ratio: This ratio is also called as receivable turnover ratio. The debtor's turnover ratio measures how quickly receivable or debtor's are converted into cash i.e liquidity of receivables.

$$\text{Debtor Turnover Ratio} = \frac{\text{Credit Sales}}{\text{Average Debtors}}$$

$$\text{Average Debtors} = \frac{\text{Debtors at the beginning of year} + \text{Debtors at the end of year}}{2}$$

When debtors turnover ratio is low, it means that the trade credit management is poor. It indicates long collection period or the debtor's are not prompt. Hence, moderate ratio is desirable.

Debt collection period: Debt collection period refers to the time taken to collect the debts.

$$\text{Debt collection period} = \frac{365 \text{ days}}{\text{Debtor's turnover ratio}}$$

Debtor's turnover ratio

Creditors Turnover Ratio: Creditors turnover ratio reveals the number of times the average creditors are paid during a given accounting period. In other words, it shows how promptly the firm is in a position to pay its creditors.

$$\text{Creditors Turnover Ratio} = \frac{\text{Credit Purchases}}{\text{Average Creditors}}$$

Creditors payment period: Creditors collection period refers to the time taken to pay the debts to creditors.

$$\text{Creditors collection period} = \frac{365 \text{ days}}{\text{Creditors turnover ratio}}$$

Creditor's turnover ratio

Capital Turnover Ratio: This ratio relates sales to capital employed and is a measure of efficiency of the capital employed in the enterprise.

$$\text{Capital Turnover Ratio} = \frac{\text{Sales}}{\text{Capital Employed}}$$

$$\text{Capital Employed} = \text{Equity} + \text{Debt}$$

Fixed Asset Turnover Ratio: The ratio of sales to fixed assets measures the turnover of fixed assets. This ratio is a measure of efficiency or use of fixed assets.

$$\text{Fixed Turnover Ratio} = \frac{\text{Sales}}{\text{Net Fixed Assets}}$$

Net fixed asset = Fixed asset – Depreciation

Working Capital Turnover Ratio: It measures how efficiently the working capital is utilized. Net working capital is the excess of current assets over current liabilities. This ratio indicates number of times the net working capital is converted into sales. The higher ratio reflects the efficiency in the management of working capital.

$$\text{Working Turnover Ratio} = \frac{\text{Sales}}{\text{Net Working Capital}}$$

Problems:

6) From the given summarized accounts of Ashok Ltd. For the year ended 31-12-1978.

Balance Sheet:

| Liabilities | Amount | Assets | Amount |
|-----------------|--------|------------------------|--------|
| Share Capital | 250 | Fixed Asset | 500 |
| General Reserve | 100 | Less: Accumulated Loss | 80 |
| Debentures | 180 | Cash | — |
| Term Loan | 30 | Debtors | 65 |
| Creditors | 70 | Inventory | 90 |
| | 630 | | 630 |

Income Statement:

| | | |
|--|------------|------------|
| Net Sales | | 350 |
| Less: Cost of Material | 70 | |
| Wages | 90 | |
| Cost of goods sold | <u>160</u> | 160 |
| Gross Profit | <u>—</u> | <u>190</u> |
| Less: Administrative, Selling & General expenses | | 50 |
| Earning before depreciation, interest and tax | | <u>140</u> |
| Less: Depreciation | | 30 |
| Operating Profit | | <u>110</u> |

| | |
|--------------------|-----------|
| Less: Interest | 25 |
| Earning before tax | <u>85</u> |
| Less: Tax | 15 |
| Earning after tax | 70 |
| Less: Dividends | 25 |
| Retaining Earning | <u>45</u> |

Compute Liquidity, Solvency, Activity and profitability ratios

Solution:

Liquidity Ratios:

1) Current Ratio :

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$
$$\begin{aligned} \text{Current Assets} &= \text{Cash} + \text{Debtors} + \text{Inventory} \\ &= 55 + 65 + 90 = 210 \end{aligned}$$
$$\text{Current liabilities} = \text{Creditors} = 70$$
$$\text{Current Ratio} = \frac{210}{70} = 3:1$$

2) Quick Ratio :

$$\text{Quick Ratio} = \frac{\text{Quick Assets}}{\text{Current Liability}}$$
$$\begin{aligned} \text{Quick Assets} &= \text{CA} - (\text{Stock} + \text{Prepaid expenses}) = 210 - 90 = 120 \\ \text{Current Liabilities} &= 70 \end{aligned}$$

$$\begin{aligned} \text{Quick Ratio} &= \frac{120}{70} \\ &= 1.7:1 \end{aligned}$$

Solvency Ratios:

1) Debt – Equity Ratio:

Debt – Equity Raio =

$$\frac{\text{Debt}}{\text{Equity}}$$

Equity = Share capital + General Reserves

$$= 250 + 100$$

Debt = Debentures + Long term loans

$$= 180 + 30 = 210$$

210

Debt – Equity Raio = = 0.6:1

2) Interest Coverage Ratio:

$$\text{Interest Coverage Ratio} = \frac{\text{Net Profit before Interest and Taxes}}{\text{Interest}}$$
$$= \frac{110}{25} = 4.4 \text{ times}$$

Activity Ratio:

1) Capital Turnover Ratio:

$$\text{Capital Turnover Ratio} = \frac{\text{Sales}}{\text{Capital Employed}}$$

$$\text{Capital Turnover Ratio} = \frac{350}{560} = 0.625 \text{ times}$$

$$\text{Capital Employed} = \text{Equity} + \text{Debt} = 210 + 350 = 560$$

2) Fixed Assets Turnover Ratio:

$$\text{Fixed Turnover Ratio} = \frac{\text{Sales}}{\text{Net Fixed Assets}}$$

$$19) \frac{350}{420} = 0.833 \text{ times}$$

3) Working Capital Turnover Ratio :

$$\text{Working Turnover Ratio} = \frac{\text{Sales}}{\text{Working Capital}}$$

Net Working Capital
350

$$= \frac{350}{140} = 2.5$$

Net Working Capital

= Current Assets – Current Liabilities

$$= 210 - 70 = 140$$

4) Inventory Turnover Ratio:

$$\text{Inventory Turnover Ratio} = \frac{\text{Cost of goods sold}}{\text{Average inventory}}$$

160

$$= \frac{160}{90} = 1.8 \text{ times}$$

Cost of goods sold = Sales – Gross Profit

$$= 350 - 190 = 160$$

5) Debtors Turnover Ratio:

$$\text{Debtor Turnover Ratio} = \frac{\text{Credit Sales}}{\text{Average Debtors}}$$

350

$$= \frac{350}{66} = 5.33 \text{ times}$$

6) Debtors Collection Period:

$$\text{Debt collection period} = \frac{365 \text{ days}}{\text{Debtor's turnover ratio}}$$

$$13) \quad \frac{365}{5.33}$$

$$14) 68 \text{ days}$$

Profitability Ratio:

1) Gross Profit Ratio:

$$\text{Gross Profit Ratio} = \frac{\text{Gross Profit}}{\text{Sales}} \times 100$$

$$\frac{190}{350} \times 100 = 54.29\%$$

9. Operating Profit Ratio:

$$\text{Operating Profit Ratio} = \frac{\text{Operating Profit}}{\text{Sales}} \times 100$$

110

$$= \frac{110}{350} \times 100 = 31.43\%$$

3) Return on Investment:

$$\text{Return on Investment} = \frac{\text{Earning before Interstand Tax}}{\text{Capital Employed}} \times 100$$

$$5. \frac{100}{510} \times 100 = 19.64\%$$

8. (a) From the following information calculate

Debt Equity ratio

Current ratio

| Particulars | Rs. | Particulars | Rs. |
|-----------------|----------|----------------|--------|
| Debentures | 1,40,000 | Bank balance | 30,000 |
| Long term loans | 70,000 | Sundry Debtors | 70,000 |
| General reserve | 40,000 | | |
| Creditors | 66,000 | | |
| Bills payable | 14,000 | | |
| Share capital | 1,20,000 | | |

(b) Calculate Interest Coverage ratio from the following information

| Particulars | Rs. |
|---|-----------|
| Net profit after deducting interest and taxes | 6,00,000 |
| 12% Debentures of the face value of | 15,00,000 |
| Amount provided towards taxation | 1,20,000 |

| | |
|--|--|
| | |
|--|--|

Solution:

(a) i) Debt Equity ratio

$$\begin{aligned} \text{Debt - Equity Raio} &= \frac{\text{Debt}}{\text{Equity}} \\ &= \frac{2,10,000}{1,60,000} = 1.31 \text{ times} \end{aligned}$$

Debt = Debentures + Long term Loans = 1, 40,000 + 70,000 = 2, 10,000

Equity = Share capital + Reserves = 1, 20,000 + 40,000 = 1, 60,000

ii) Current Assets:

$$\text{Current Raio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

$$= \frac{1,00,000}{80,000} = 1.25 \text{ times} \quad \text{Current}$$


Assets = Bank balance + Sundry Debtors = 30,000 + 70,000 = 1, 00,000

Current Liabilities = Creditors + Bills payable = 66,000 + 14,000 = 80,000

(b) Interest Coverage Ratio:

$$\text{Interest Coverage Ratio} = \frac{\text{Net Profit before Interest and Taxes}}{\text{Interest}}$$

$$= \frac{9,00,000}{1,80,000} = 5 \text{ times}$$

| | |
|-----------------------------------|--|
| Net profit after Interest and Tax | = 6, 00,000 |
| Add: Interest | = 1, 80,000 |
| | (15,00,000 x 0.12 = 1,80,000) |
| Add: Tax | = 1, 20,000 |
| | <hr/> |
| | = 9, 00,000 |
| Interest |  |
| | = 1, 80,000 |

5. From the following information find out:

Gross Profit Ratio

Operating Profit Ratio

Net Profit Ratio

| Particulars | Rs. | Rs. |
|---------------------------------|-----------|-----------|
| Sale | | 56,00,000 |
| Less: Cost of Goods sold: | | |
| Raw Materials | 22,00,000 | |
| Wages | 12,00,000 | |
| Other production expenses | 8,00,000 | 42,00,000 |
| Gross Profit | | 14,00,000 |
| Less: Administration Expenses: | | |
| Selling expenses | 50,000 | |
| Distribution expenses | 1,00,000 | |
| Administrative expenses | 3,00,000 | |
| Loss on sale of Fixed assets | 18,000 | |
| Loss on sale of Investments | 10,000 | |
| Interests (on long-term debts) | 1,30,000 | |
| Provision for taxation | 2,60,000 | |
| (Inclusive of advance tax paid) | | 8,68,000 |
| Net Profit | | 5,32,000 |

a) Gross Profit Ratio:

$$\text{Gross Profit Ratio} = \frac{\text{Gross Profit}}{\text{Sales}} \times 100$$

$$6) \frac{14,00,000}{56,00,000} \times 100 = 25\%$$

b) Operating Profit Ratio:

$$\text{Operating Profit Ratio} = \frac{\text{Operating Profit}}{\text{Sales}} \times 100$$

$$6) \frac{9,50,000}{56,00,000} \times 100 = 16.96\%$$

Operating profit ratio = Gross profit – (Selling expenses + Distribution expenses + Administration expenses)

$$8) 14,00,000 - (50,000 + 1,00,000 + 3,00,000)$$

9,50,000/-

C) Net Profit Ratio:

$$\begin{aligned} \text{Net Profit Ratio} &= \frac{\text{Net Profit}}{\text{Net Sales}} \times 100 \\ &= \frac{8,68,000}{56,00,000} \times 100 \\ &= 15.5 \% \end{aligned}$$

UNIT - 6

CAPITALANDCAPITALBUDGETING

Capital: The order to start and run a business i.e., to produce and sell the goods or services, money has to be invested. The money invested in the business in order to yield an income is know as capital.

Need of Capital:

16. Purchasing Fixed Assets
17. Purchase of Raw Materials
18. To meet day-to-day expenditure
19. To promote a business
20. To conduct business operations smoothly
21. To wind up business

7) Capital Budgeting: Capital budgeting is long-term investment decision. It is most crucial financial decision of firm. It relates to the selection of an asset or investment proposal or course of action whose benefits are likely to be available in future over the lifetime of the project.

Ex: purchase of new Fixed Assets or Replacement of old assets

20)Working Capital Management: This short-term investment decision, working capital is required for the day-to-day business activities of the enterprise. The important components of working capital are inventories, receivables, and cash balances, which keep on circulating in enterprises.

15)Financing Decision: Which is concerned with the financing-mix or capital structure or leverage. The capital structure decides the blending of the owned and borrowed funds in the total. Financial requirement it also implies determination of the sources, timing and procedure to obtain funds which an enterprises needs for its long-term and short-term operation.

16)Dividend Policy Decision: The third major decision of finance manager is relating to dividend policy. The firm has two alternatives with regard to management of profits of a firm. Either they can be distributed to the

shareholders in the form of dividends or they can be retained in the business or even distributed some portion and retain the remaining the course of action to be followed is a significant element in the dividend decision.

Classification Working Capital:

10. On the basis of concepts: on the basis of concept it is again classified into Gross Working capital and Net Working Capital.

a) Gross Working Capital: In the broader sense the term working capital refers to the gross working capital refers to the gross working capital. The notion of the gross working capital refers to the capital invested in the total current assets of the enterprises.

b) Net Working Capital: In a narrow sense the term working capital refers to the net working capital. Net working capital represents to excess of current assets and current liabilities.

11. On the basis of time: On the basis of time it is again classified in to Permanent working capital and Temporary working capital.

a) Permanent or Fixed Working Capital: This is always a minimum level of current asset which is continuously required by the enterprises to carry out its normal business operations and this minimum is known as fixed working capital.

Ex: Every firm has to maintain a minimum level of raw material work-in-process, finished goods and cash balance to the business operations smoothly and profitability.

6. Temporary or Variable Working Capital: This working capital, which is required to meet the seasonal demands and some special exigencies.

Ex: Launching of extensive marketing campaigns and conducting research activities

Working Capital Cycle: The main objective of any business organization is to maximize the wealth of shareholders. Earning steady amount of profit requires successful sales activity. For a success of the sales activity, a firm has to invest enough funds in the current assets. The operating cycle of a manufacturing organization consists of following events.

I. Conversion of cash into raw materials,

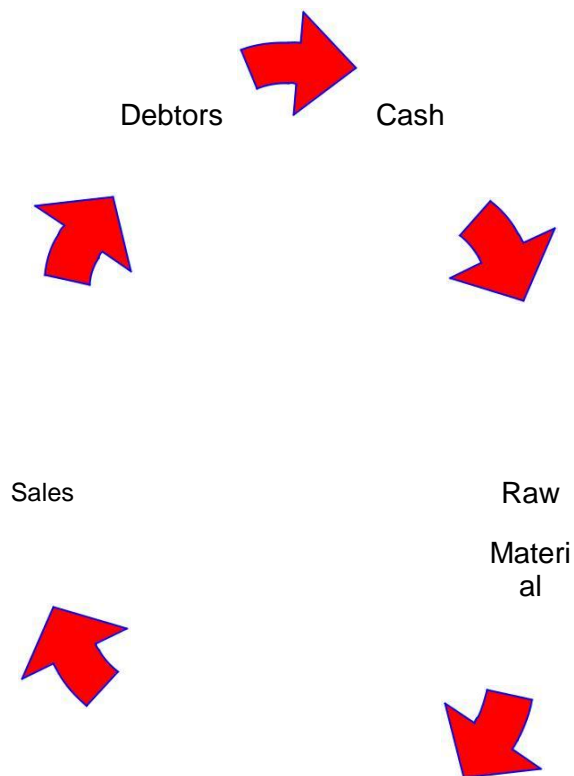
9. Conversion of raw materials into work-in-process

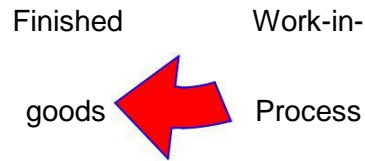
III. Conversion of work-in-process into finished goods

IV. Conversion finished goods into debtors and bill receivables through sale

V. Conversion of debtors and bill receivables into cash

The cycle repeats itself repeatedly. The operating cycle converting sales into cash is shown below.





Since none above processes is taking place instantaneously, therefore a firm needs working capital. Hence, working capital is requiring running the day-to-day business activities of an organization.

Importance of Working Capital:

Solvency of the business: Adequate working capital helps in maintaining solvency of the business by providing uninterrupted flow of production

Good will: Sufficient working capital enables a business concern to make prompt payments and hence helps in creating and maintaining goodwill.

Easy loans: A concern having adequate working capital, high solvency and good credit standing can arrange loans from banks and others on easy and favorable terms.

Cash discounts: Adequate working capital also enables a concern to avail cash discounts on the purchases and hence it reduces costs.

Regular supply of raw materials: Sufficient working capital ensures regular supply of raw materials and continuous production.

Regular payments of salaries wages and other day to day commitments: A company which has ample working capital can make regular payment of salaries, wages and other day to day commitments which raises the moral of its employees, increases their efficiency, reduces wastage and costs and enhances production and profits.

Ability to face crisis: Adequate working capital enables a concern to face business crisis in emergencies.

Quick and regular return on investment: Every investor wants quick and regular returns on his investment. Sufficiency of working capital enables a concern to pay quick and regular dividends to its investors, as there may not be much pressure to plough back profits.

Factors affecting working capital: The working capital requirements of industries vary from one unit to another and from one type of unit to another type.

6. Length period of manufacture: A factory using simple short period process of production require a small amount of working capital where as a factory which needs a long period of manufacture will need large amount of working capital.

7. Turnover inventories: Turnover is the ratio of annual gross scale to the average inventories. If the inventories are small and their turn-over is quick, the unit will require a small amount of capital.

8. Terms of purchases and sales: The amount of working capital varies directly with the use of credit

Ex: Purchase on credit require less working capital
Sales on cash require less working capital

Size of business: The working capital requirements of a concern are directly influenced by the size of its business which may be measured in terms of scale of operations. Greater the size of a business unit, generally, larger will be the requirements of working capital. Smaller the size of business unit requires smaller amount of working capital

Seasonal variations: Industries producing seasonal goods such as coolers, umbrellas, raincoats, fans etc., require large amount of working during the off-season, during the season the goods are sold and less amount of working capital is required.

Business cycle: At the peak of the business cycle, the turnover is quick, the products are sold quickly as they are produced and hence smaller amount of working capital is necessary.

Banking facilities: Which organization having more banking facilities such a organization required less working capital else required more working capital.

Nature of business: Working capital also depends upon the nature of business there are certain businesses that require large amount of fixed capital than the working capital.

Ex: Railway, state transport required less working capital, where as trading companies need more amount of working capital than the fixed capital.

Components of Working Capital: from the accounting point of view, working capital is the difference between current assets and current liabilities. (working capital = Current assets – Current liabilities)

Current Assets: Current assets are expected to be realized in cash or consumed during business operations.

Ex: current assets are cash in hand, cash at bank, stock debtors, expenses paid in advance (Prepaid expenses), incomes yet to be received, short-term investments, bills receivable and so on.

Current Liabilities: Current liabilities are those which are payable in the near future say less than an year.

Ex: Creditors, bills payable, bank overdraft, and outstanding expenses or accrued expenses.

Method of Source of Finance:

The following are the common methods of finance:

7) Long – term source of finance

8) Short – term source of finance

Long – term finance: Long-term finance refers to that finance available for a long period say three years and above. The long-term methods outlined below are used to purchase fixed assets such as land and buildings, plant and so on.

7) Shares Capital: Normally in the case of a company, the capital is raised by issue of share, the capital so raised is called share capital, the liability of the shareholders is limited to the extent of his contribution to the share capital of the company.

9) Preference share capital: Preference share are those shares, which carry priority rights with respect to payment of dividend so long as the company is in existence and return of capital at the time of liquidation of company.

e) Cumulative preference share: The holders of cumulative preference shares enjoy the right to receive, when profits permit, the dividend missed in the years when the profits were nil or inadequate.

e) Non-cumulative preference shares: The holders of these shares do not enjoy any right over the arrears of dividend. Hence the unpaid dividend in arrears cannot be claimed in future.

f) Participating preference shares: The holder of these shares enjoys the dividend two times. They get their normal fixed rate of dividend as per their entitlement. They participate again along with the equity shareholders in distribution of profits.

iv) Redeemable preference shares: These shares are repaid at the end of a given period. The period of repayment is stipulated on each share.

iv) Non-redeemable preference shares: These shares continue as long as the company continues. They are repaid only at the end of the lifetime of the company.

3) Equity Share Capital: Equity or ordinary shareholders are the real owner of the company. They have voting rights in the meeting of the company, thus have control over the working of the company. Equity shareholders are paid dividend after making payment to preference shareholders. There is no limit of dividend in case of equity shares.

7. Debentures: A company may acquire long-term finance through public borrowing. The issue of debentures raises these loans. "A debentures is a document under the company's seal which provides for the payment of a principal sum and interest there on at regular intervals, which is usually secured

by the fixed or floating charge on the company's property or undertaking and which acknowledges a loan to the company at fixed rate of debentures are printed or written on the back of the document.

5) Secured vs Unsecured debentures: Secured debenture also called as mortgage debentures. Secured debentures are those secured by some charge on the assets of the company. They are empowered to sell such assets for the recovery by the issuing company.

There is no security for these debentures. Normally, the companies having a good financial record issue unsecured debentures.

6) Convertible vs Non-convertible: These debentures are converted into equity shares after the period mentioned in the terms and conditions of issue. In terms of cost, debentures are cheaper than the equity shares. Where the company is not sure of good profits to sustain the size of equity, it prefers to issue convertible debentures. These debentures continue as loan for the defined period. These are converted into equity shares on the specified date.

Non-convertible debentures will not converted into equity shares they continue as loan till the date of repayment

7) Redeemable vs Non-redeemable: These debentures are repaid on a specified date

Non-redeemable debenture are repaid only at the en of the lifetime of the company.

2) Long – Term Loans: There are specialized financial institutions offering long-term loans, provided the business proposal is feasible. The promoters should be able to offer assets of the business as security to avail of this source.

3) Retain Profits: The retained profits are profits remaining after all the claims. They form a very significant source of finance. Retained profits form good source of working capital. Particularly in times of growth an expansion, retained profits can be advantageously utilized.

4) Public Deposits: Another way of raising finance by a company is to invite public deposits for some period at a certain rate of interest. Deposits are

accepted for meeting the short and medium term capital requirement of the company ranging from one year to three years and renewal of deposit allowed.

Short – Term Source: Short-term finance is that finance which is available for a period of less than one year. The following are the source of short-term finance:

5) Commercial Paper (CP): It is a new money market instrument introduced in India in recent times. CPs are issued usually in large denominations by the leading, nationally reputed, highly rated and credit worthy, large manufacturing and finance companies in the public and private sector. The proceeds of the issue of commercial paper are used to finance current transactions and seasonal and interim needs for funds. Reliance Industries is one of the early companies, which issued CP.

6) Bank Overdraft: Over drafts means an agreement with bank by which a current account holder is allowed to withdraw more than the balance in his credit up to a certain limit. The interest is charged on the overdrawn account.

7) Advance from Customers: It is customary to collect full or part of the order amount from the customers in advance. Such advance are useful to meet the working capital needs.

8) Bank Loans: When a bank makes an advance in lump sum against some security it called loan. The bank loan is usually provided for one year. But now-a-days term loans are also provided for 3 to 7 years. The term loans may be either medium term or long-term loans.

9) Trade Credit: This is a short-term credit facility extended by the creditors to the debtors. Normally, it is common for the traders to buy the materials and other supplies from the suppliers on credit basis. After selling the stocks, the traders pay the cash and buy fresh stocks again on credit. Sometimes, the suppliers may insist on the buyer to sign a bill (bill of exchange). This bill is called bills payable.

10) Internal Funds: The firm itself by way of secret reserves, depreciation provisions, taxation provisions, retained profits, generates internal funds and so on and these can be utilized to meet the urgencies.

Factors consider for estimating of working capital requirements

Adequate working capital is required to run the business to avoid the shortage of working capital at once an estimate of working capital requirement should be made in advance.

The following factors have to be taken into consideration while making an estimate of working capital requirements.

The level of production (in units)

The length of time for which raw materials to remain in stores

The time taken for conversion of raw material into finished goods

The length of time taken to convert finished goods into sales

The average period of credit allowed to customers

The amount of cash required to pay day to day expenses of the business and make advances

The average credit period expected to be allowed by suppliers

Time-lag in the payment of wages and other expenses

The prices of factors of production

| | |
|----------------------------|-----------------|
| Net working capital | 1,84,616 |
| ADD: 10% for contingencies | 18,462 |
| Working capital required | <u>2,03,078</u> |

Working Notes:

| | | |
|-----------------------|---|------------------|
| <u>Sale</u> | = | 1, 00,000 x 8 |
| | = | 8, 00,000 |
| Profit 25% x 8,00,000 | = | 2,00,000 |
| Cost of sales | = | <u>6, 00,000</u> |

5) A proforma cost sheet of a company provides the following particulars:

Elements of Cost:

Material 40% of sales

Direct Labour 20% of sales

Over heads 20% of sales

5) It is proposed to maintain a level of activity of 2,00,000 units

6) Selling price is Rs.12/- per unit

7) Raw materials are expected to remain in stores for an average period for an average period of one month

8) Materials will be in process, on an average half a month

9) Finished goods are required to be in stock for an average period of one month

10) Credit allowed to debtors is two months

11) Credit allowed by suppliers is one month

You may assume that sales and production follow a consistent pattern

You are required to prepare a statement of working capital requirements

Solution :

Material $40\% \times 12 = 4.80$

Labour $20\% \times 12 = 2.40$

Over heads $20\% \times 12 = 2.40$



$$\text{Total Cost} = \frac{9.60}{\text{---}}$$

Current Assets:

$$\text{Stock of Raw Material} = \frac{2,00,000 \times 4.8 \times 1}{12} = 80,000$$

Work in Process

$$\text{Raw Material} = \frac{2,00,000 \times 4.8 \times 0.5}{12} = 40,000$$

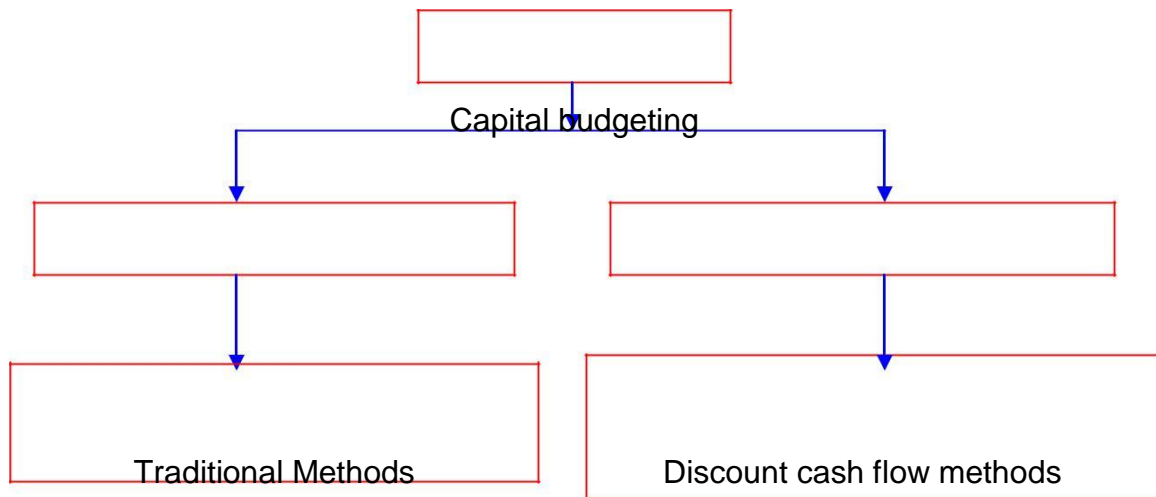
$$\text{Labour} = \frac{2,00,000 \times 2.4 \times 0.5}{12} = 20,000$$

$$\text{Overheads} = \frac{2,00,000 \times 2.4 \times 0.5}{12} = 20,000$$

| | | | |
|--|---|---|------------------------|
| Finished Goods | | | |
| <hr/> | | | |
| Raw Material | = | $\frac{2,00,000 \times 4.8 \times 1}{12}$ | 80,000 |
| Labour | = | $\frac{2,00,000 \times 2.4 \times 1}{12}$ | 40,000 |
| Overheads | = | $\frac{2,00,000 \times 2.4 \times 1}{12}$ | <u>40,000</u> 1,60,000 |
| Debtors | = | $\frac{2,00,000 \times 9.6 \times 2}{12}$ | <u>3,20,000</u> |
| | | | 6,40,000 |
| LESS: Current Liabilities | | | |
| <hr/> | | | |
| Creditors | = | $\frac{2,00,000 \times 4.8 \times 1}{12}$ | <u>80,000</u> |
| Net working capital required (CA - CL) | = | | <u>5,60,000</u> |

Methods of Capital Budgeting:

Method of capital budgeting are broadly classified into two categories. There are further categorized into few types are shown below.



i) Pay back period methods

j) Accounting rate of return(ARR)

8) Net present value (NPV) method

9) Internal rate of return method(IRR)

10) Profitability Index(PI)

Traditional Method:

a) Payback Period: Pay back period represent the number of years required to recover the original investment. It also called as payoff period.

When project generates constant annual cash flows:

$$\text{Pay back period} = \frac{\text{Original Cost of the project}}{\text{Annual cash inflows}}$$

When project does generate constant annual cash flows

$$\text{Pay back period} = \text{Lower year} + \frac{\text{Original Cost of the project} - \text{AACI for lower year}}{\text{AACI for higher year} - \text{AACI for lower year}}$$

Note: Annual cash inflows is consider after tax and depreciation only

2) Accounting Rate of Return (ARR): The Average Rate of Return method of evaluating proposed capital expenditure it is also known as the accounting rate of Return method. It is based upon accounting information rather than cash flows.

This method based on accounting profit, takes into account the earnings expected from investment over the entire lifetime of asset.

$$\text{ARR} = \frac{\text{Average Annual Earning} \times 100}{\text{Average Investment}}$$

$$\text{Average Annual Earning} = \frac{\text{Total Annual Earnings After Tax and Depreciation}}{\text{Expected Life of Asset}}$$

If there Scrap Value:

$$\text{Average Investment} = \frac{\text{Net Investment}}{2}$$

2

If there is Scrap and Additional Capital:

$$\text{Average Investment} = \frac{\text{Net Investment} - \text{Scrap Value}}{2} + \text{Scrap Value} + \text{Additional Capital}$$

Note : Project with highest ARR is preferred.

Discounted Cash Flow Method: This method is improved methods over the traditional technique. Discounted cash flows are the future ash inflows reduced to their present value based on a discounting factor. The process of reducing the future cash inflows to their present value based on a discounting factor or cut-off returns is call discounting.

1) Net Present Method (NPV): Net present value refers to the excess of present value of future cash inflows over and above the cost of original investment. It takes into consideration the time value of money.

$$\text{NPV} = \text{Present Value of Cash inflows} - \text{Initial Investment}$$

| | | | |
|------------------------|-------------------------|-----------------------------|-----------------------------------|
| | CF ₁ | CF ₂ | CF _n |
| Present Value Factor = | $\frac{\quad}{(1+k)^1}$ | $+$ $\frac{\quad}{(1+k)^2}$ | $+$ $\frac{\quad}{(1+k)^n}$ |

Note: Which project gives highest value that project is accepted else rejected

2) Internal Rate of Return (IRR): This IRR for an investment proposal is that discount rate which equates the present value of cash inflows with the present value of cash outflows of an investment. In other words IRR is rate at which sum

of discounted cash inflows equal the sum of discounted cash outflows. It can be also be defined as the rate which NPV equates to zero

$$\text{IRR} = L + \frac{P_1 - Q}{P_1 - P_2} \times D$$

L = Lower discount rate

P₁ = Present value of earning at lower rate

P₂ = Present value of earning at higher rate

Q = Annual Investment

D = Difference in rate of returns

Note: The project with greater or higher IRR is accepted.

3) Profitability Index (PI): Profitability Index is the ratio of present value of cash inflows to the present value of cash outflows. It is also called benefit cost ratio.

$$\text{Profitability Index} = \frac{\text{Present value of cash inflows}}{\text{Present value of cash outflows}}$$

Note: When PI is greater than one, the proposal is accepted otherwise rejected.

Problems:

1) The proposals in respect of the following two projects are to be examined using a) Pay-back method b) Accounting rate of return method

Initial investment of both projects = Rs.20,000

Estimated cash flows after tax are as follows.

| Year | Proposal -1 | Proposal - 2 |
|------|-------------|--------------|
| 1 | 12,500 | 11,750 |
| 2 | 12,500 | 12,250 |
| 3 | 12,500 | 12,500 |
| 4 | 12,500 | 13,500 |

Solution:

Proposal – 1:

Pay-back period:

Since this proposal is generating constant annual cash inflows, pay-back period is given by

$$\text{Pay back period} = \frac{\text{Original Cost of the project}}{\text{Annual cash inflows}}$$

20,000

Pay back period = _____ = 1.6 years

ARR Method:

$$\text{ARR} = \frac{\text{Average Annual Earning}}{\text{Average Investment}} \times 100$$

$$\text{Average Annual Earning} = \frac{50,000}{4} = 12,500$$

$$\text{Average Investment} = \frac{20,000 - 0}{2} + 0 + 0 = 10,000$$

$$\text{ARR} = \frac{12,500}{10,000} \times 100 = 125\%$$

Proposal – 2:

Pay-back period:

Since this proposal has unequal cash inflows, pay-back period is given by

Original Cost of the project – AACI for lower year

$$\text{Pay back period} = \text{Lower year} + \frac{\text{Original Cost of the project} - \text{AACI for lower year}}{\text{AACI for higher year} - \text{AACI for lower year}}$$

| Year | Proposal - 2 | AACI |
|------|--------------|-----------------------------|
| 1 | 11,750 | 11,750 AACI for Lower Year |
| 2 | 12,250 | 24,000 AACI for Higher Year |
| 3 | 12,500 | 36,500 |
| 4 | 13,500 | 50,000 |

Initial investment is lies between 2 year and 3 year

$$\text{Pay back period} = 1 + \frac{20,000 - 11,750}{24,000 - 11,750} = 1.67 \text{ years}$$

ARR Method:

$$\text{ARR} = \frac{\text{Average Annual Earning}}{\text{Average Investment}} \times 100$$

$$\text{Average Annual Earning} = \frac{50,000}{4} = 12,500$$

$$\text{Average Investment} = \frac{20,000 - 0}{2} + 0 + 0 = 10,000$$

$$\text{ARR} = \frac{12,500}{10,000} \times 100 = 125\%$$

2) Consider the case of the company with following two investment alternatives each costing Rs.9 lakhs. The details of the cash inflows are as follows

| Years | Rs. In lakhs | |
|-------|--------------|-------------|
| | Project -1 | Project - 2 |
| 1 | 3 | 6 |
| 2 | 5 | 4 |
| 3 | 6 | 3 |

The cost of capital is 10% per year. Which project will you choose under NPV and PI method?

Solution:

Project – 1:

NPV:

$$R = 1$$

$$PV \text{ factor} = \frac{1}{(1+R)^n} = \frac{1}{(1+0.1)^1} = 0.909 \text{ for first year like that for remaining years}$$

| Year (1) | Cash Inflows (2) | PV factor (3) | Present value of cash inflows (4 = 2x3) |
|-------------|---------------------|------------------|--|
| 1 | 300000 | 0.909 | 2,72,700 |

| | | | |
|--------------------------------|--------|-------|-----------|
| 2 | 500000 | 0.825 | 4,13,000 |
| 3 | 600000 | 0.751 | 4,50,000 |
| Present value of cash inflows | | | 11,36,300 |
| Present value of cash outflows | | | 9,00,000 |
| NPV | | | 2,36,300 |

PI:

$$\text{Profitability Index} = \frac{\text{Present value of cash inflows}}{\text{Present value of cash outflows}}$$

$$\text{Profitability Index} = \frac{11,36,300}{9,00,000} = 1.26$$

Project – 2:

NPV:

| Year (1) | Cash Inflows (2) | PV factor (3) | Present value of cash inflows (4 = 2x3) |
|--------------------------------|---------------------|------------------|--|
| 1 | 600000 | 0.909 | 5,45,400 |
| 2 | 400000 | 0.825 | 3,30,400 |
| 3 | 300000 | 0.751 | 2,25,300 |
| Present value of cash inflows | | | 11,01,100 |
| Present value of cash outflows | | | 9,00,000 |
| NPV | | | 2,01,100 |

PI:

$$\text{Profitability Index} = \frac{\text{Present value of cash inflows}}{\text{Present value of cash outflows}}$$

$$\text{Profitability Index} = \frac{11,01,100}{9,00,000} = 1.22$$

| | NPV | PI |
|-------------|----------|------|
| Project – 1 | 2,36,300 | 1.26 |

| | | |
|-------------|----------|------|
| Project – 2 | 2,01,100 | 1.22 |
|-------------|----------|------|

According to NPV and PI shows highest value for project – 1 so project -1 is accepted.

3) A firm has an investment opportunity involving Rs.50,000. The cost of capital is 10%. From the details given below find out the internal rate of returns and see whether the project is acceptable.

| Year | Cash inflows |
|------|--------------|
| 1 | 5,000 |
| 2 | 10,000 |
| 3 | 15,000 |
| 4 | 25,000 |
| 5 | 30,000 |

Solution:

$$IRR = L + \frac{P_1 - Q}{P_1 - P_2} \times D$$

| Year | Cash Inflows | PV @ 15% | Present value of cash inflows | PV @ 20% | Present value of cash inflows |
|------|--------------|----------|-------------------------------|----------|-------------------------------|
| 1 | 5000 | 0.870 | 4,350 | 0.833 | 4,165 |
| 2 | 10000 | 0.756 | 7,560 | 0.694 | 6,940 |
| 3 | 15000 | 0.658 | 9,870 | 0.579 | 8,685 |
| 4 | 25000 | 0.572 | 14,300 | 0.482 | 12,050 |
| 5 | 30000 | 0.497 | 14,910 | 0.402 | 12,060 |

| | | | | |
|--|-------|--------|--|--------|
| | | | | |
| | Total | 50,990 | | 43,900 |

The present value of cash inflows at 15% is Rs.50,990 which is more than initial investment of Rs.50,000 and at 20% Rs.43,900 which is less than the required one. Hence, the actual IRR lies in between 15% and 20% and can be computed by way of interpolation as follows.

MEFA

$$\text{IRR} = L + \frac{P_1 - Q}{P_1 - P_2} \times D$$

| | |
|--|-------------|
| L = Lower discount rate | - 15% |
| P ₁ = Present value of earning at lower rate | - Rs.50,990 |
| P ₂ = Present value of earning at higher rate | - Rs.43,900 |
| Q = Annual Investment | - Rs.50,000 |
| D = Difference in rate of returns | -5(20%-15%) |

$$\text{IRR} = 15 + \frac{50,990 - 50,000}{50,990 - 43,900} \times 5$$

$$\text{IRR} = 15 + \frac{990}{7090} \times 5$$

$$\text{IRR} = 15.7\%$$

As the internal rate of return (IRR) is above the cost of capital (10%), the project is acceptable.

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