UNIT – I

INTRODUCTION TO MANAGERIALECONOMICS

The word economics is derived from a Greek term "***OCIO NOMOS***" which means house management it explains how different individuals behave while managing their economics activities. Economics teaches us how a person tries to satisfy his unlimited desires with the limited resources at his disposal. In other word it teaches us how to use the available scares resources to meet our unlimited desires. Hear the question of choice comes in the need for choice arises in the context of "Scarcity".

MANAGERAL ECONOMICS:

Economics is concerned with determining the means of achieving given objectives in the most efficient manner. While managerial economics is the application of economic theory and private institutions. It is an extraction from economic theory, particularly micro economics those concepts and techniques which enable the decision Makers to efficiently allocate the resources of the firm. If also enables the decision makers to understand the economic environment and the effect of changes in this on resources allocation within the organization

Definition:

- Economics is deals with money or money oriented activites.
    - According to Brigham and Pappas " The application of economics theory and methodology to business administration practice".
    - Spencer &Siegelman "The integration of economic theory with business practice for the purpose of facilitating decision making & forward planning by management".

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Nature of managerial Economics :-

The following points specify the nature of managerial Economics.

- ✓ **Managerial economics is confined only to a part of business management:** Managerial economics is confined only to a part of business management but it is not directly concerned with the managerial problems involving control, implementation, and other management strategies.
- ✓ **Managerial economics mainly relies on the sound framework of traditional economics and decision science:** Managerial economics mainly relies on the sound framework of traditional economics and decision science in analyzing the problems in a business. It mainly relies on the application of economic principles and methodologies for business decision making.
- ✓ **Managerial economics is mainly microeconomics in nature:** Micro economics is that branch of economics which deals with the individual units or sections of an economy. As managerial economics is mainly concerned with analyzing and finding optimal solution to the problems of decision-making in a business firm, it is essentially micro economic in nature.
- ✓ **Managerial economic is pragmatic:** It is a practical subject. It prevents the abstract issues of economic theory and incorporates complications that are not covered by the economic theory in order to analyze the situation in which manager take decisions
- ✓ **Managerial economic falls into normative economics:** Economics can be classified into two broad categories namely positive and normative. Positive economics describes 'what is' i.e., observed economic phenomenon. The statement "Poverty in India is very high" is an example of positive economics. Normative economics

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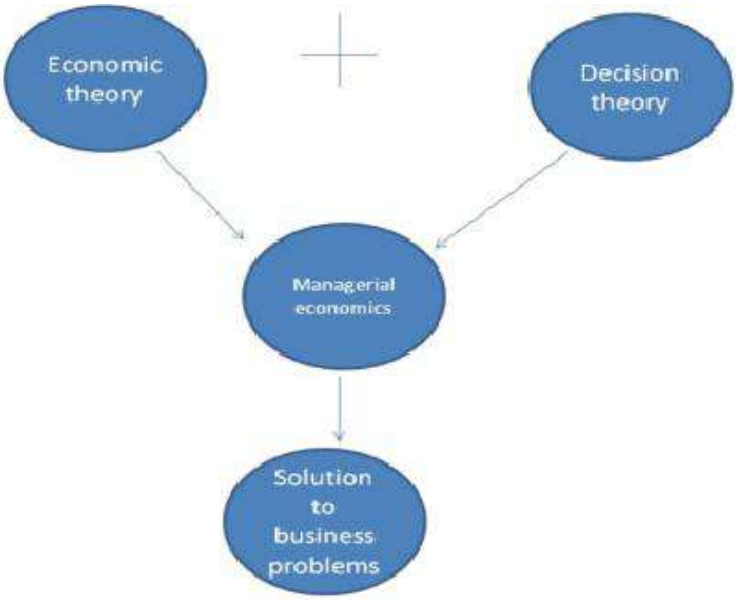
describes 'what ought to be' or 'what should be' differentiates the ideal from the actual. The statement "people who earns more income should pay more income tax than people who earn low income" is an example of normative economics

- ✓ **Managerial economics is goal oriented and problem solving in nature:** It uses the economics theory and decision science for solving business, oriented problems.
- ✓ **Managerial economics integrated theory into practice:** It converts the theoretical framework of economics into real business practice.



Nature of managerial economics

Scope of managerial economics

The following business areas can be considered as the scope of managerial economics:

- ✓ **Objective of a business firm or organization:** Managerial economics provide a sound frame work by facilitating a business firm to frame its objectives both in the short-run and long-run.

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- ✓ **Resource allocation:** Managerial economics provide the methods of effective resource allocation. It mainly aims at achieving high output through low and proper allocation of resource.
- ✓ **Demand analysis and Demand forecasting:**It suggests the methodologies for analyzing the demand of a product. The demand forecasting techniques it provides demand for a product which proven to be quite efficient for meeting the competition.
- ✓ **Competitive analysis:** The managerial economics provides competitive techniques for facilitating a firm to withstand or to face in a competitive situation.
- ✓ **Strategic planning:** Managerial economics guides a business manager in making strategic decisions.
- ✓ **Production management:** Managerial economics plays a vital role in production management. Its effective tools helps to plan the business schedule, regulate the production process and effectively place the output in the market
- ✓ **Cost analysis:** Managerial economics provides various cost concepts and cost curves that facilitates in determining cost-output relationship both in short-run and long-run.
- ✓ **Pricing strategies:** Managerial economics provides certain pricing strategies that are used in analyzing the price of a product and in determining or setting the price of a product.
- ✓ **Investment and capital budgeting decisions:** The concept of opportunity cost provided by managerial economics facilitates in making appropriate investment decisions and choose the best alternative that fits the organizational requirements.
- ✓ **Marketing strategies:** Managerial economics provide marketing strategies like

1) Product policy

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2) Sales promotions

3) Segmentation, targeting and positioning.

- ✓ **Economics of sales:** Managerial economics in the long-run helps a firm to enjoy economies and diseconomies of scale.
- ✓ Profit management: Managerial economics mainly concentrates on the primary goal of a firm i.e., profit maximization. It deals with the activities like profit estimation and profit planning
- ✓ **Input and Output analysis:** The concept of production function managerial economics depicts the input and output relationship.
- ✓ **Inventory control:** Effective inventory control techniques of managerial economics readily meet the organizational requirements

VARIOUS DEFINITIONS OF ECONOMICS (or) THEORY'S OF ECONOMICS

There are a large no of definitions of economics given by various economists some of the definitions given by some well know economists are discussed here.

ADAM SMITH"S Definition;-

Adam smith the first among the classical economists and the" father of economics" published a book in 1776 "WEALTH OF NATION" in this book he defined economics as a Science of wealth .The other early economists also accepted this definition but this definition received severe criticism as it exclusively paid its attention to wealth as if wealth was everything.

According to Adam's definition everything is related to money/finance,

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if have the finance we can assume anything, if we don't have the money/ finance we can't assume anything.

Main features of wealth definition

1. Economics is the study of wealth
2. Wealth mean only material things, non material goods like services are not included
3. Human being are guided by self interest

ALFRED MARSHALL'S Definition:-

Welfare definition is given by marshal he tried to decreased the defects of wealth definition according to marshal economics is the one side of study of wealth & the other more important side it is a part of study of man When marshal said that economics is a science of ordinary business life that it tells us about a man's way of living that is how he earns his income and how he spends it.

According to marshal economics is human welfare – not the whole of human welfare but only a part of it namely economics. or rendering services to the society.

Main features of welfare definition

1. Economics is a study of mankind in the ordinary business of life
2. Marshal given primary importance to man where wealth is given in secondary position
3. When marshal said that economics is a science of ordinary business life. In spite of all this marshal definition was also criticized by Robbins has objected to the welfare definition on

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the ground that it includes within its preview only material welfare. It ignores are excludes non material welfare of human being.

ROBBIN'S Definition:-

Prof. Robbins has advanced his own definition of economics in 1931 in his famous book of an essay on the nature and significance of economics science he introduced scarcity definition of economics According to him Economics is the science which studies human behavior as a relationship between unlimited wants, limited resources which has alternative uses.

Main features of scarcity definition

1. Human wants are unlimited we cannot satisfy all our wants.
2. Resource is limited
3. Resources have alternative uses
4. His definition is universal

BRANCHES OF ECONOMICS

Economics is a vast and expanding science for an easier understanding and analysis of these different types of economics activities the subject is classified into two broad divisions.

1. Micro Economics
2. Macro Economics

MICRO ECONOMICS:-

The word micro means a" millionth" part or very small the study of individual units are called micro economics. It deals with individuals or single units. The micro economics is called as price theory.

Micro economics is based on the assumption of full employment another important assumption is free from trade system in the economy.

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Importance of micro economics:-

1. It explains how the price mechanism determines the production and distribution
2. it explains how the factor prices product prices are determined
3. It explains how the producer will get maximum product with minimum cost

MACRO ECONOMICS: -

Macro economics is the study of economic system as a whole it studies not the individual economics units like consumer but whole economic system "MACRO" means big it is well developed by J.M.KEYNES. The macro economics is called as an income and employment theory. This theory deals with aggregates and average of the entire economy for example national income, aggregates demand, aggregates savings, aggregates investment etc.

ECONOMICS RELAION WITH OTHER SCIENCES:

The scope of a subject will be clearer by way of its relation with other branches of learning. Managerial economics has a link of connection in the basic lines of so many fields of studies such as.

1. Econometrics (or) Statistics
2. Accounting
3. Mathematics
4. Public economics
5. Operation research
6. Decision making

DEMAND

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In ordinary language demand means desires. But in economics demand has a separate meaning which is quite differ from above meaning a person has a desire it can't became demand in economics.

A desire which is backed up by Having want, Ability to buy, Willingness to pay at the price is called demand.

"Thus the quantity of commodity purchased at a given price at a given time in a given market is called demand".

Demand function:-

The demand function explain the relationship between the demand for a commodity and its various determinants may be express mathematically is called "Demand function"

Mathematical Equation:-

Dn = f {P1, P2, I, T, P…….n}

Whereas:

Dn: demand for commodity

F : function

P1 : price of the product

P2 : price of other product

I : Income of the consumer

T : Taste & habits of consumer

P : Population

LAW OF THE DEMAND:-

Law of Demand states that demand varies inversely with price, not

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necessarily,proportionately; if the price falls demand will extend and rice versa. The law can also be stated as "A rise in the price of a commodity or service is followed by a reduction in demand remain constant i.e., demand is subjected to several influences, the operation of any of those influences may counteract the law".

Obviously the law of demand is based on the law of diminishing marginal utility. The law of the demand thus it started as where the remaining all are constant the higher price leads to lower demand for the goods and lower price leads higher demand for the goods (or) where the remaining all are constant there is inverse relation between price and demand .it explains the consumershould purchase high at lower price and low quantity at higher price. In other words "When price increase demand will decrease""When price decreases demand will increase" This is called inverse relation between price and demand because of inverse relation demand curve moves to left to right down forward

Demand schedule:-

The law of demand if expressed in the form of a table is called demand schedule. The law of demand if expressed in the form graph called demand curve

Example: the table below is an example of a demand schedule of product x.

Price of commodity X (Rs)	Quantity demanded of commodity X (Kg)
1	5

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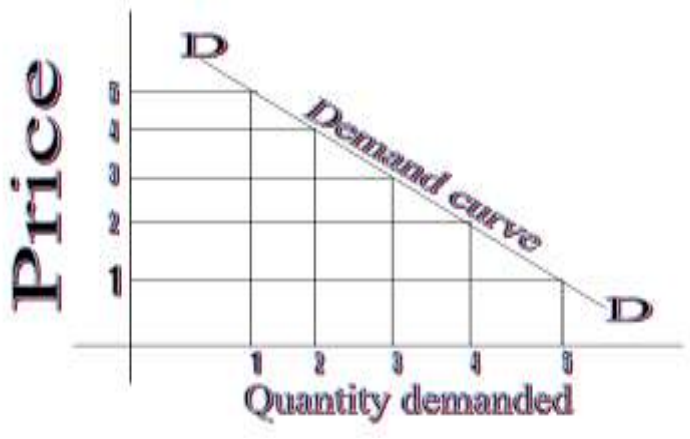
2	4
3	3
4	2
5	1

Demand curve for above table



DETERMINENTS OF DEMAND:-

The demand for a commodity or service depends upon a number of factors. These include:

a. Price of the Commodity

b. Income of the consumer

c. Price of relative goods

d. Taste and habits of the consumer

e. Population

f. Climate condition

a) Price of commodity:

The price of a given commodity is an important factor influencing its demand. If the

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priceisvery high, only few rich persons can offer to buy it. Hence, the quantity of the commodity bought at this high price will be lowlife; the commodity will have a lower demand. On other hand, if the price is low, it will be within the reach of a large number of people to buy it. Consequently, a greater amount of the commodity will be bought and demand shall be high. Thus the price of commodity or services is an important determinant of the level of its demand.

b) Income of the consumers:

When the consumer income increases the demand for goods and services will be increased. If consumer income decreases demand also decreases.

c) Price of relative goods:

The demand for a commodity is affected by the prices of relative goods. In the case of substitute goods if "x" commodity prices increases "y" commodity demand will be increased and vice-versa. And in the case of complementary goods if "x" commodity prices increases "y" commodity demand will be decreased and vice-versa.

d) Tastes and habits of consumers:

Consumer has the sovereignty power in the economy. Consumer is the king of market economy. Tastes and habits of the consumer differ from person to person, place to place and time to time. So, tastes and habits which in terms influence the demand for the commodity.

e) Population:-

The quantity of population also determines the demand. If population increases demand will be increased, if the population decreases demand also decreases

f) Climatic conditions:

According to the climatic conditions the change will becomes for the different types of

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goods. Eg:-There will be higher demand for cool drinks in summer and more demand for umbrellas in rainy seasons

EXCEPTION OF THE DEMAND:

The law of the demand may not be applicable in all cases. In such cases if the price is increasing demand also increases, if the price decreases demand also decreases such cases are called exception of the demand.

- Giffen goods
- Veblen goods
- Population
- Consumer Expectations
- Seasonal Business

GIFFEN PARADOX:-

Giffen observed that when the price of the product is decreasing the demand for the product is decreasing. These products are called inferior goods. Similarly when the price of the product is increasing the demand is also increasing. Such types of products are called superior goods. In this case demand curve moves left to right up forward.

VEBLEN GOODS:-

Veblen goods are also called prestige goods. Commodities gold diamond etc, are called Veblen goods. Generally rich people purchase these goods for the prestige and greatness .the use of such article increases the prestige of the owners so richer may purchase more when pricesincreases demand also increases. When price decreases demand also decreases. It is stated by Veblen these goods are called Veblen goods. In this case demand curve moves left to right up forward.

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POPULATION:-

The quantity of population also determines the demand. If population increases demand will be increased, if the population decreases demand also decreases

COMSUMER EXPECTATIONS:

Whenever the consumer expects a further fall in the price in future he will not purchase the products or goods immediately .when price decreases demand tends to decline. Similarly when the consumer expect a future increase in the piece for the future he will demand the product immediately.

ELASTICITY OF DEMAND INTRODUCTION:

There is inverse relationship between quantity demand and the price of the commodity as per the law of demand. This law does not state the degree of change in demand due t6o change in price. There are commodities whose demand is more responsive and others less responsive to change in the price. Responsiveness' of the demand to change in price of commodity is known as elasticity of demand. In other words the concept of elasticity of demand explains the definite relationship between changes in demand and price of the commodity. In simple words "the change in quantity demanded due to change in price" is termed as elasticity of demand.

In other words when we measure the proportionate change in the quantity demanded of a commodity due to change in its price it is known as elasticity of demand. It is a qualitativestatement. Demand elasticity is the percent change in the sales that accompanies percent changes in any demand determined is called elasticity.

Types of Elasticity of demand

There are four major types of elasticities of demand. They are

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- ✓ Price elasticity demand
- ✓ Income elasticity demand
- ✓ Cross elasticity demand
- ✓ Advertising elasticity of demand

- **Price elasticity of demand**

Definition:

It is defined as the extent of response of demand for a commodity to a given change in price with other demand determinants being constant.

In simple terms:

The ratio of proportionate change in the quantity demanded of a commodity to proportionate change in its price. It is re-presented as.

$$Ep = \frac{\text{Proportionate change in quantity demand of a commodity}}{\text{Proportionate change in the price of the commodity}}$$

Symbolically

$$\mathbf{Ep = \frac{\Delta Q / Q1}{\Delta P / P1}}$$

OR

$$\mathbf{Ep = \frac{\Delta Q}{\Delta P} X \frac{P1}{Q1}}$$

Where as

Ep = Price elasticity of demand

ΔQ = Proportionate change in the quantity demanded

Q1 = Quantity demanded

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ΔP = Proportionate change in the price

P = Actual or original price

Types of price elasticity of demand

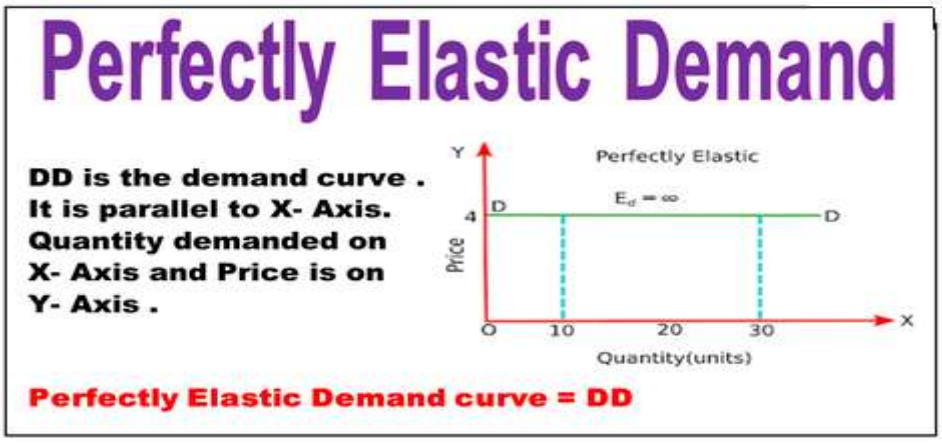
Conceptually the price elasticity of demand is classified into five different categories. They are

- Perfectly elastic demand
- Perfectly inelastic demand
- Unitary elastic demand
- Relatively elastic demand
- Relatively inelastic demand

Perfectly elastic demand:

A commodity is said to have perfectly elastic demand. When noreduction in price is required to cause an increase in the quantity demanded. The elasticity co-efficient for perfectly elastic demand is **Ep=α**

The shape of the demand curve for perfectly elastic demand is horizontal as shown in the below figure.



Perfectly inelastic demand:-

A commodity is said to have perfectly inelastic demand. When even alarge change in price of the commodity causes no change in the quantity demanded. The elastic co-efficient of perfectly inelast5ic demand is **Ep=0**.

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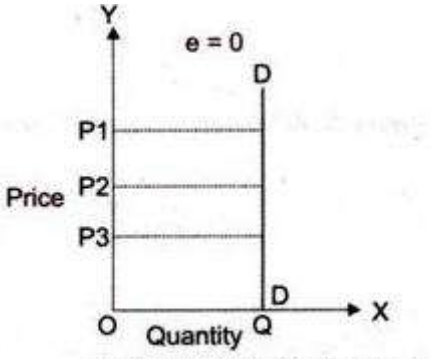
The shape of demand curve for perfectly inelastic is vertical as shownbelow.

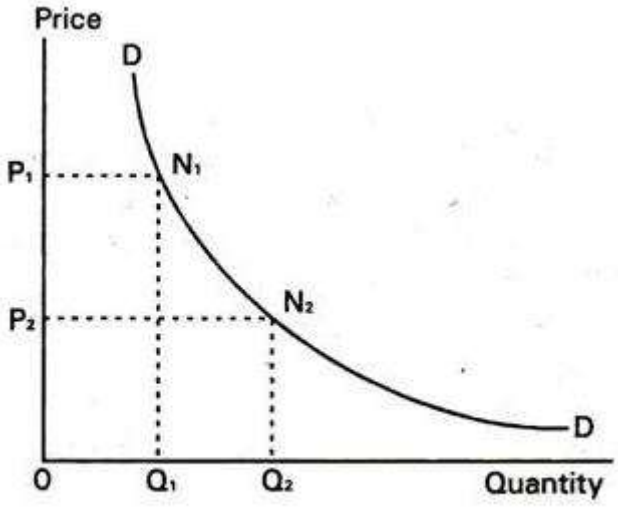


Perfectly Inelastic Demand

Unitary elastic demand:-

When a proportionate change in the price of the product causes anequally proportionate change in its quantity demanded then the commodity is said to have unitary elastic demand. The elastic co- efficient of unitary elastic demand is Ep=1

The shape of the demand curve for unitary elastic is a regular hyperbola as shown below.



Unitary elastic demand

Relatively elastic demand:

A commodity is said to have relatively elastic demand when a change in its price causes more than proportionate change in its quantity demanded. The elasticity co-efficient of relatively elastic demand is Ep>1

The demand curve takes the shape as shown in the below graph.

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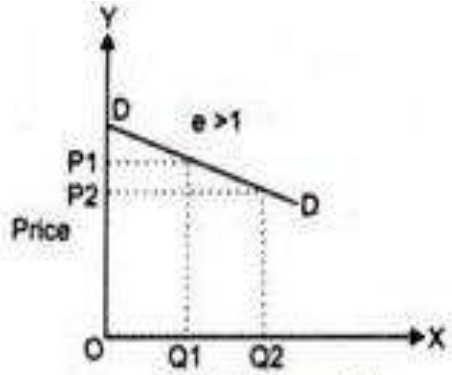
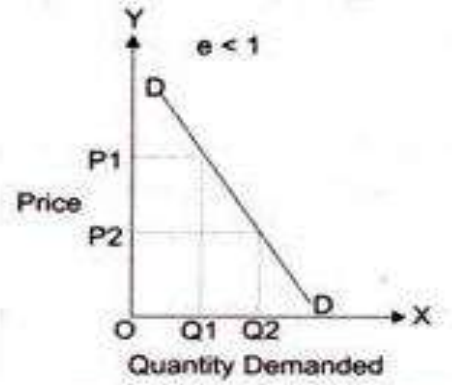


Relatively Elastic Demand

Relatively inelastic demand:

When a change in the price of the commodity causes a lessproportionate change in the quantity demanded, then the commodity is said to have relatively inelastic demand. The elastic co-efficient of relatively inelastic demand is Ep<1

The demand curve of the relatively inelastic as shown in the below



Relatively Inelastic Demand

Income elasticity of demand :-

Definition:

Income elasticity of demand is the ratio of percentage change in the quantity demanded of a commodity to the percentage change in consumer's income.

Mathematically it is represented as

$$\mathbf{Ei} = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in income of consumers}}$$

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$$Ei = \frac{\Delta Q / Q1}{\Delta I / I1}$$

OR

$$Ei = \frac{\Delta Q}{\Delta I} \times \frac{I1}{Q1}$$

Where as

Ei = Income elasticity of demand

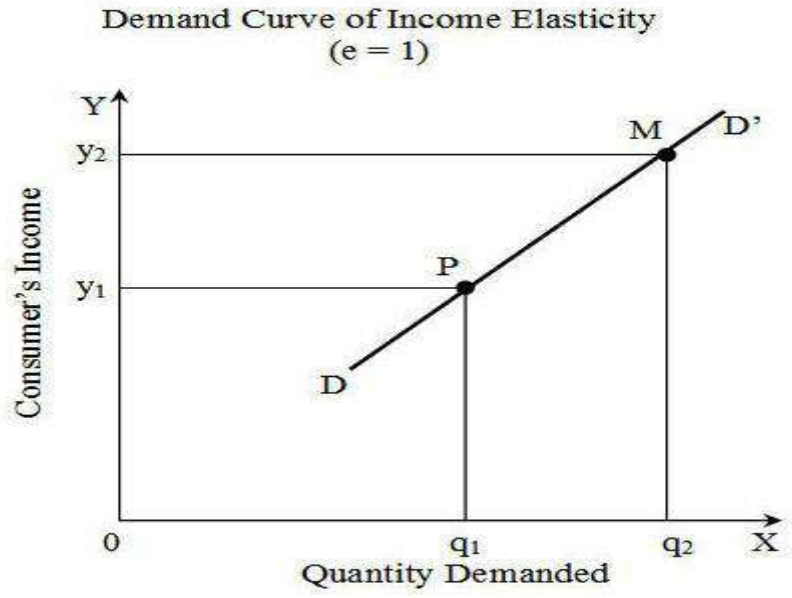
ΔQ = Proportionate change in quantity demanded

Q1 = Actual demand

ΔI = Proportionate change in consumers income

I1 = Actual income of the consumers

The demand curve for income elasticity is as shown in the below graph.



Cross elasticity of demand:-

Cross elasticity of demand refers to the quantity demanded of a commodity in response of a change in the price of a related good, which may be substitute or complementary. It is measured as follows

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$$\text{Cross elasticity} = \frac{\text{Proportionate change in quantity demanded for product X}}{\text{Proportionate change in price of product Y}}$$

The same expressed as

$$Edc = \frac{[Q_2 - Q_1] / Q_1}{[P_2Y - P_1Y] / P_1Y}$$

OR

$$Edc = \frac{Q_2 - Q_1}{P_2Y - P_1Y} \times \frac{P_1Y}{Q_1}$$

Whereas,

Q1 = Quantity demanded before change

Q2 = Quantity demanded after change

P1y = Price before change

P2y = Price after change in the case of product y

Advertising elasticity of demand:-

It refers to increase in the sales revenue because of change in theadvertising expenditure. In other words there is a direct relationship between the amount of money spent on advertising and its impact on sales. Advertising elasticity is alwayspositive.

$$\text{Advertising elasticity} = \frac{\text{Proportonate change in quantity demanded for product X}}{\text{Proportionate change in price of product Y}}$$

The same expressed as

$$Edc = \frac{[Q_2 - Q_1] / Q_1}{[A_2 - A_1] / A_1}$$

OR

$$Edc = \frac{Q_2 - Q_1}{A_2 - A_1} \times \frac{A_1}{Q_1}$$

Q1 = Quantity demanded before change

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Q2 = Quantity demanded after change

A2 = Amount spent on advertisement after change

A1 = Amount spent on advertisement before change

METHODS OF FORECASTING:

1. **Survey method:**
   The survey method is most extensively used method in India. Under thismethod surveys are conducted to collect information about the future plans of the potential consumers. The survey method is generally used for short-term forecasting.

2. **Collective opinion method:-**
   Under this method the opinions of those who have the feel of the market, like salesmen, professional experts, and market consultants etc; are collected.

3. **Expert opinion (Delphi) method:**
   This technique of forecasting is based on the opinions of the experts in the business world. This method is used for demand forecasting and manpower planning. It is also widely used in the areas of technological and environmental forecasting, defense strategies but urology, foreign affairs etc. This technique is usually applied in uncertain areas where past data (or) future data cannot be used much.

4. **Statistical method:**
   Trend projection method is a statistical technique which makes use of sometime will be having sales data pertaining to different periods. These data, whenarranged chronologically, give a "time series". This time series reveals the past demand pattern of the product. Based on this demand pattern a sales trend is extrapolated into the future.

5. **Controlled experiments method:**
   Here studies and experiments in consumers' behavior arecarried out under actual market conditions. Some three (or) four cities having similarity in population, income levels, cultural and social background, occupational distribution, taste etc; are chosen for study. The various demand determinants like price, advertisement, expenditure etc; are changed one by one .The effects of these changes on demand in these cities are observed. These observations are made use to find out the elasticity Co-efficient. These elasticity help to determine the demand for the product.

6. **Judgmental approach: -**
   Management will have to use its own judgmental when analysis of trend projection is not feasible due to wide fluctuation in sales and analysis of economics indicator is not possible because of lack of historical data even when statistical methods are

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used might be desirable to supplement them by use of judgment.

7. **Correlation and regression methods:**

Correlation and regression methods are statistical techniques. Correlation describes the degree of association between 2 variables such as sales and advertisement expenditure, when the 2 variables tend to change together then they are said to be correlated. The extent to which they are correlated can be measured by correlation coefficient. In regression analysis an equation is estimated which best fits in the sets of observations of dependent variables and independent variables. The main advantage of this method is that it provides the values of independent variables from within the model itself. Thus it frees the forecaster from the difficulty of estimating them exogenously.

8. **Test marketing method:**

This method includes providing token money to a set of consumer and asking them to shop around in a simulation market. The prices of various goods, their quality packaging etc. vary during the experiments to observe consumers reaction to such changes. This generates information which could be sufficient to estimate the demand function.

FACTORS GOVERNING ELASTICITY OF DEMAND:

Elasticity of governed by a number of factors change in any one of these factors is likely to affect the elasticity of demand. The factors are:

- ✓ **Nature of the Product:**

The products and services are classified into necessities, comforts & Luxuries. Necessaries imply the absolute or basic necessities such food, clothing, shelter comforts refer to T.V. Refrigerator etc. luxuries we mean sofa sets marble flooring in a house and such others. Based on the requirement goods will get demand for necessities comforts and luxuries.

- ✓ **Number of Alternative Uses:**

If the numbers of alternatives uses are more the demand is said to be highly in elastic and vice versa. Take the case of power or electricity it is used for a number of alternative uses such as running of machines in industries, offices, households, trains etc.

- ✓ **Tastes and Preferences of the Consumers:**

Where the customers is particular about his taste and preferences the product is said to be inelastic for the customers who are particular or total to certain brands such as Colgate, Tata tea etc, prices increases do not matter they tend to buy that brand in spite of the price changes.

- ✓ **Price of the Products:**

If the price of a product is expensive or very cheap then the product is likely to have or inelastic demand. If the price is too high a fall in it will not increase thedemand much similarly if the price is too low a further fall in its price is not likely to result in more demand. The demand of the relatively poor people is more sensitive to pricechanges. In order to derive maximum satisfaction from their limited income they try to plan their purchases in response to changes in prices the rich may not bother about price changes.

- ✓ **Disability of the product:**

Where the product is durable in case of consumer durable such as T.V. the demand iselastic. In the case of possible goods such as milk the demand is inelastic.

- ✓ **Government Policy:**

The important aspect to get more demand for a product is Govt policy. If the Govtpolicyis liberal the product it likely to have elastic demand (More demand for the product).

- ✓ **Availability of Subsidies:**

Subsidy refers to money paid by a Government or other public authority in order to help acompany financially or to make something cheaper for the public. There is need for subsidies in case of goods with inelastic demand such as LPG, Sugar, and Wheat are so on.

- ✓ **Change of Income:**

The demand for various commodities are affected in different degrees due to change in income in case of increase in the income of consumers the demand for luxuries will fall. As such demand for luxuries is more elastic in relation to change in income in care of comforts it is less elastic and in case of necessaries it is probably inelastic

- ✓ **Selecting a proper method of forecasting:**

Another step is to select is to select suitable methods of forecasting in view of theobjectives, availability of data, etc. For example, if the data shows cyclic fluctuations, the use of linear trend will be suitable. Similarly, general trend may be more useful for long term forecasting, while seasonal patterns will be more important for the short-term forecast.

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UNIT – II

THEORY OF PRODUCTION AND COST ANALYSIS

THEORY OF PRODUCTION :-

The Production is the process of transforming the various inputs land, labour, capital &organization into output production theory speaks of the relation between inputs and outputs sales minus cost is profit can be minimized by increasing selling price or by reducing cost price. Selling price is fixed by the interaction of market forces viz, demand & supply. Hence the entire manager is confronted with the problem of reducing cost and thereby achieving the objectives of minimizing profit.

Production theory studies the relationship between various possible input and output combinations. The factors of production are nothing but inputs of production. Factor of production mean Land, Labour, Capital & Organization.

OBJECTIVES OF PRODUCTION:

The term firm refers to an establishment which performs all the entrepreneurial functions.With reference to a unit of production therefore it may bedefined as a unit of production {enterprise}. A firm may own and manage one factory of more than one factory manufacturing the same reduction or even different products. We already familiar with the term 'micro' in economic analysis it refers to the analysis of a small part of component of the whole economy such as a study pertaining to an individualconsumer's beerier or that of an individual firm are a particulars industry. It is erodent then that the study of a firm's behavior forms. A part of analysis. Analysis of a firm may be better appreciated if we look at its objectives.

1. The owners of a firm may aim at some objectives which are non-monetary in nature. Such as personal ego. To satisfy them the firm may seek to produce goods or services even though that may not be able to gain any monetary gain.

2. It may desire to acquire economic power and therefore, enter into productive activity. This implies control on the market.

3. It may want to engage itself in some occupation and therefore may undertake producing

4. It may seek to maximize output so that the economy grows at a desired rate

5. It may produce goods and on humanitarian grounds distribute them to the public freely or noprofit no loss basis.

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PRODUCTION FUNCTION:-

Production is the result of combined efforts of the various factors-land-labour-capitals and entrepreneur production is the transformation of inputs or resources in to output. The rate of output of any commodity functionally depends on the quantity of inputs. Used per unit of time.The technological relationship between physical output and physicalquantities of inputs is referred to as production function. It shows the relation between quantity of output and the quantity of various inputs used in production. Here the price factor is not considered. Production is the transformation of physical inputs into physical outputs. A change in the present production technology will result in a change in the productionfunction. An improved technology helps to produce a given out put with a less or quantity of inputs. In algebraic from the production function may be stated as:-

P = F {L,L,C,O,T)

P= Output

F=Functional relation

Input (Labour, Land,, Capital, Organiser, Technology)

Production Function 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 procedure is using the best technique available.

4) The factors of production are divisible.

5) Production function can be fitted to a short run or to a long run.

COBB-DOUGLAS PRODUCTION FUNCTIONS:

Cobb-Douglasproduction function was given by Cobb and Douglas indicating production quantity to find out the relation between the physical rate of input and physical rate of output as a function of labour and capital inputs. The following formula was used relating to output in manufacturing industries from 1899 to1922.

In algebraic from the production function may be stated as:-

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P = F{C, L}

Whereas:

P – Production output

F- Function

C - Capital

L – Labour

Isoquants :-

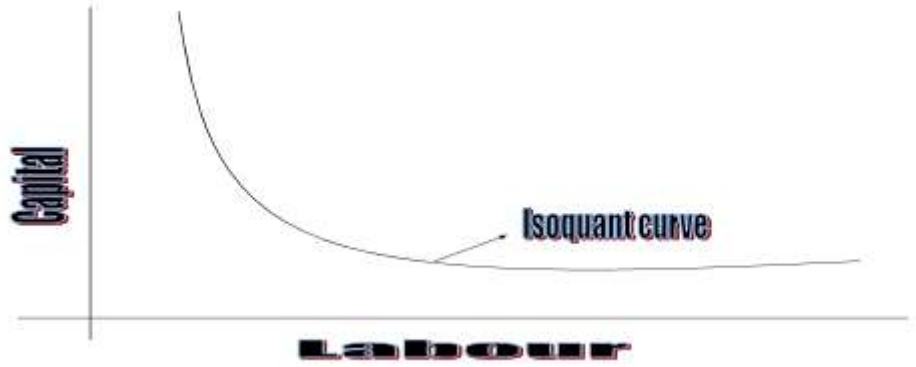
Iso means equal, quant means quantity. Isoquant means that the quantities throughout a given Isoquant are equal. Isoquants are also called as isoproducts curves. An Isoquant curves shows various combination of two input factors such as capital and labour, which yield the same level of output.

As an Isoquant curve represents all such combinations which yield equalquantity of output, any or every combination is a good combination for the manufacturer.

The concept of Isoquant is explained below

Combinations	Capital (Rs.In lakhs)	Numbers of labour
A	1	20
B	2	15
C	3	11
D	4	8
E	5	6

Isoquant curve for the above figures



Features of an Isoquant :-

- ✓ **Downward sloping:**

Isoquants are downward sloping curves because, if one input

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increases, the other one reduces. There is no question of increase in both the inputs to yield agiven output. A degree of substitution is assumed between the factors of production. Isoquant slope form left to right

- ✓ **Convex to origin:**

Isoquants are convex to origin. It is because the inputs factors are not perfect substitutes. One factor can be 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 Proportions and substitutions of one input for the other cannot take place. The Isoquant will be L shaped

- ✓ **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 higherlevel of output he has to switch over to another Isoquant with a higher level of output and vice-versa.

- ✓ **Do not touches axes:**

The Isoquant touches neither X-axis and Y-axis, as both inputs arerequired to produce a given product.

Marginal rate of technical substitution (MRTS)

The marginal rate of technical substitution (MRTS) refers tot eh rate at which one input factor is substituted with the other to attain a given level of output. In other words, the lesser units of one input must be compensated by increasing amounts of another input to produce the same level of output. The below table presents the rate ofMarginal rate of technical substitution (MRTS) between the two inputs factors, say capital and labour.

Combination	Capital (Rs.In lakhs)	Labour	Marginal Rate of Technical Substitution (MRTS)
A	1	20	-
B	2	15	5:1
C	3	11	4:1
D	4	8	3:1
E	5	6	2:1
F	6	5	1:1

$$MRTS = \frac{\text{Change in one input}}{\text{}}$$

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Change in another input

$$MRTS = \frac{\triangle K}{\triangle L}$$

Where as

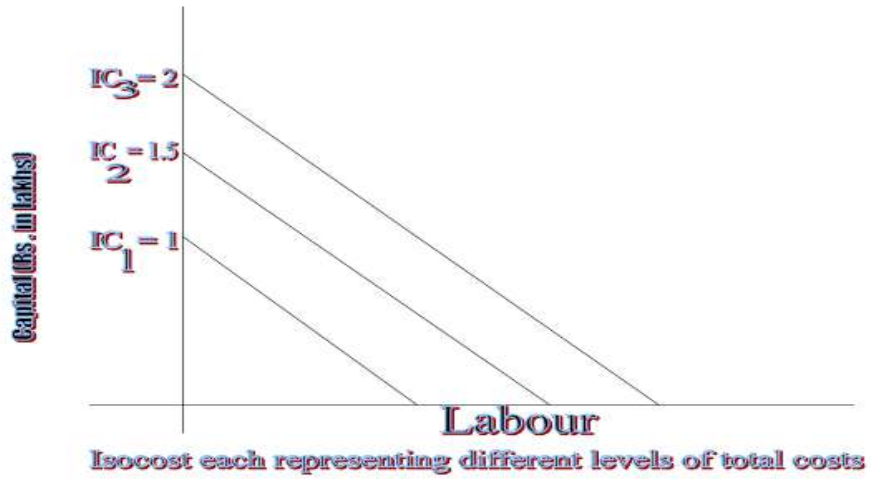
ΔK = Change in capital

ΔL = Change in Labour

Isocosts:-

Isocosts refers to that cost curve that represents the combination of inputs that will cost the producer the same amount of money. In other words, each Isocost denotes a particular level of total cost for a given level of production. If the level of production changes, the total cost changes and thus the Isocost curve moves upwards and vice-versa.

Below graph presents three down ward sloping straight line cost curves (Assuming that the input prices are fixed, no quantity discounts are available). Each costing Rs.1lakh Rs.1.5lakhs & Rs.2lakhs for the output levels of 20000, 30000, 40000 units.Isocosts farer from the origin, for given input costs are associated with higher costs. Any change in input prices, it changes the slopes of Isocost lines.



Isocost each representing different levels of total costs

Least cost combination of inputs:-

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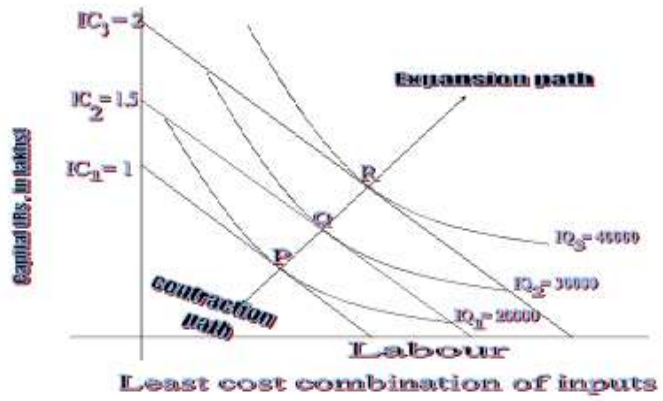
The manufacturer has to produce at lower costs to attain higher profits. The Isocosts and Isoquants can be used to determine the input usage that minimizes the cost of production.

Where the slope of Isoquant is equal to that of Isocost, there lies the lowest point of cost of production. This can be observed by super imposing the Isocosts on isoproducts curves: it is evident that the producer can, with a total outlay of Rs.1.5 lakh, reach the highest Isoquant curve which is IQ2. If he wants to reach IQ3 he has to bring additional resources, which is, let us assume it is not possible. He cannot compromise with IQ1 as it means lower output. There is no other input combination on IQ2 other than point Q, which is cheaper than Rs.1.5 Lakh. So theobvious choice for the producer is Q combination of inputs only on IQ2

The point of tangency P, Q & R on each of the Isoquant curves represents the least cost combination of inputs, yielding maximum level of output. Any output lower or higher than this will result in higher cost of production



LAW OF PRODUCTION (OR) LAW OF RETURNS:-

While production function specifies the relation- ship between a given quantity of output and certain given quantities of inputs. Laws of production state the relational output. The laws which explain input output relations are:

- Law of variable proportions
- Law of return to scale

LAW OF VARIABLE PROPORTION

The law of variable proportions also known as laws of returns is associated with short-term production function The law of variable proportions is the fundamental law of diminishing returns normally this law operates when factor proportions are variable by keeping certain factorsconstant. It is common experience for every former that as more and more lab our and capital are employed an given price of land the total returns increase after a point less than proportionately or at a diminishing rate

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Assumptions:-

1) One factor is fixed and others are variable

2) Methods of production remain un changed

3) There is no change in production techniques

4) The variable factors are homogeneous and identical in amounts quality.

We assume that a farmer has 10 acres of land for increasing output on land. The farmer has to increase in this example land is fixed factor and lab our and capital are variable. The input outputrelationship is observed in the following table.

Units of input variables(Labour)	Total production	Average production	Marginal production
1	8	8	8
2	20	10	12
3	36	12	16
4	48	12	12
5	55	11	7
6	60	10	5
7	63	9	3
8	64	8	1
9	64	7.1	0
10	60	6	- 4

From the above table it is clear that as we go on increasing application of variable factors on a fixed factor in the beginning total product increases more than proportionally and after a point it shows a tendency to increase at a diminishing rate. In other words in the operation of this law we can point out three stages in the first stage total product increases along with an increase in the average product. It may be noted that TP increases at an increasing rate. This state ends at the point where AP is equal to MP in the third stage TP decreases. AP continues to decrease and MP become negative.

These stages are shown in the fallowing diagram.

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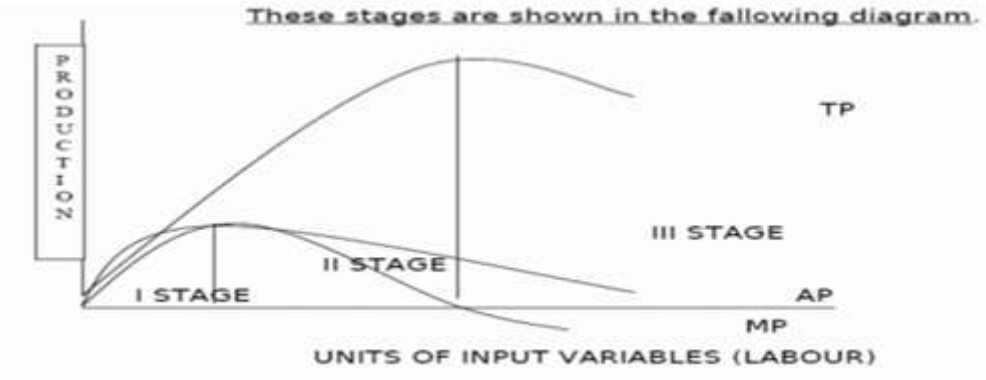

Stages	Total Production (TP)	Marginal Production (MP)	Average Production (AP)
First	Total Production increases at increasing rate at this stage.	At the first stage Marginal Production also increases and reaches its maximum.	It also increases and reaches its maximum it equal to marginal production.
Second	Increases at diminishing rate and reaches its maximum points	Decreases and becomes zero	Starts decreasing it never become zero.
Third	Starts decreases	Becomes negative	Starts diminishing (It never becomes negative)

LAW OF RETURNS TO SCALE:-

There are three laws of returns governing production function.

1. Law of increasing returns to scale.

2. Law of constant returns to scale.

3. Law of decreasing returns to scale.

Law of increasing returns to scale: -

This law states that the volume of output keeps onincreasing with every increase in the inputs. Where a given increase in inputs leads to a more thanproportional increase in the output, the law of increasing returns to scales is said to operate We can introduce division of labour and other technological means to increase production. Hence the total product increases at an increasing rate.

Law of constant returns to scale: -

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When the scope for division of labour gets restricted, the rateof increase in the total output remains constant, the law of constant returns to scale is said tooperate. This law states that the rate of increase/decrease in volume of output is same to that of rate of increase/decrease in inputs.

Law of decreasing returns to scale: -

Where the proportionate increase in the inputs does notlead to equivalent increase in output, the output increases at a decreasing rate, the law of decreasing returns to scale is said to operate. This results in higher average cost per unit. These laws can be illustrated with an example of agricultural land. Take one acre land, if you fill the land well with adequate bags of fertilizers and sow good quality seed, the volume of output increases.

Economies of scale:-

Economies of scale are of two types.

- Internal Economies of scale
- External Economies of scale

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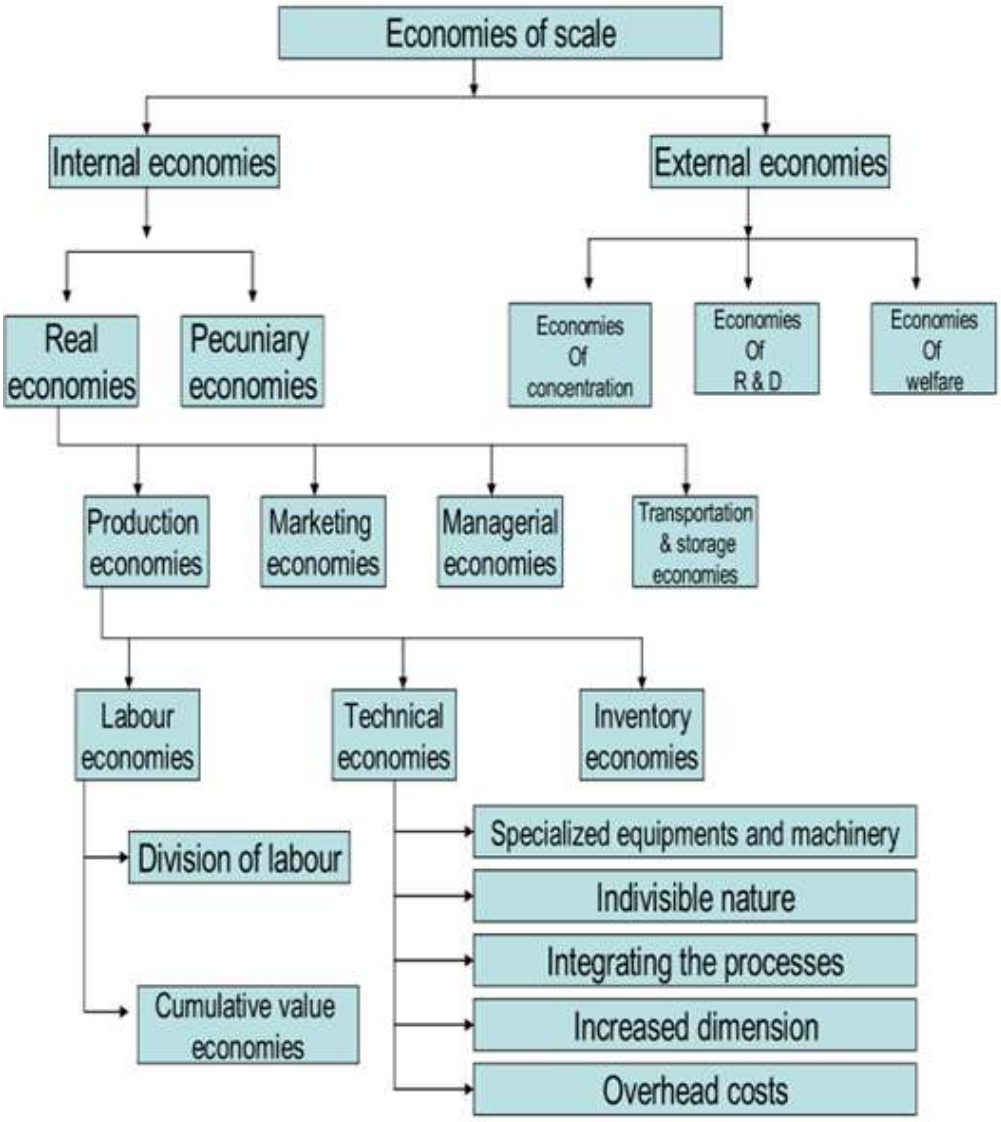

Internal economies:-

Internal economies of scale are those which arise when the firm increases its plant size. Internal economies of scale are related to long- run average cost (LAC) curve.The internal economies to scale are categorized into

- Real economies of scale
- Pecuniary economies of scale

✓ **Real economies of scale :-**

Real economies of scale occur when t he quantity of inputs used toproduce a given level of output decreases. Real economies of scale are of four types.

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- Production economies of scale
- Marketing economies of scale
- Managerial economies of scale
- Transportation and storage economies of scale

❖ **Production economies of scale:**

Production economies arises due to the following

- Labour economies
- Technical economies
- Inventory economies

➢ **Labour economies :**

Labour economies of scale arises due to the following

➢ **Division of labour economies :**

An increase in output facilities the division of labour which reduces the cost by

- Improving specialization
- By saving the time period of production
- Providing good condition for inventions of number of machines

❖ **Cumulative volume economies:**

In large scale production , the technicalpersonnel who engaged in production acquire a significant experience and thiscumulative volume of experience facilitates in higher productivity and therefore reduces the cost

❖ **Technical economies :**

Technical economies are associated with fixed assets like machines and equipments., these economies arise due to following

❖ **Specialized equipments and machinery:**

The increase in output level mechanizes the production method and the equipments involved in it. This specialization reduces the variable cost of production process.

❖ **Indivisible nature:**

Machinery and equipment used in the production process are indivisible i.e.,

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they are available in certain definite sizes. As the output level increases from initial level to the maximum level which a machine is used for all output levels. As a result the cost of machine is shared between more and more output units which reduces the cost production per unit

❖ **Integrating the process:**

Integration of processes occurs when a largeautomatic or a numerically controlled machine manages everything without any involvement of labour units. This reduces the time and labour cost involved in production process.

❖ **Increased Dimensions:**

The initial and running cost of many machinesincreases less rapidly when compared to their capacity. These results in economies of increased dimension. If the external dimension of a container is doubled, its volume is increased by eight times and the area of its surface walls is increased by four times only. Therefore this reduces material cost per unit.

❖ **Overhead cost:**

As the output level is increased, the unit costs of initial fixedexpenses, that is required for a new business or a new product.

❖ **Inventory economies:**

Inventories should always be ready to meet the changes in the input side and the output side of the production process. It has been observed that the inventories at the input and output increases less rapidly than output level. These economies occur due to the process of massed resources.

➢ **Marketing economies of scale:**

Marketing economies of scale occur due to the following

- Less proportionate increase in the advertising expenditure with respect to scale
- Increased R & D expenses due to the development and adoption of new modelsand designs.

➢ **Managerial economies of scale:**

Managerial economies of scale occur to the following reasons.

- A larger firm has a greater scope of division of managerial tasks which helps themanages to get specialized in their own areas and achieve efficiency

- Experience of working in teams helps the managers of the large firms to acquireamore

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comprehensive outlook and to take quicker and better decisions.

- In large firms with the policy of decentralization in decision-making, the delayin the flow of information is reduced leading to increased managerial efficiency.

- Opportunities for the introducing of modern management and organizational:restructuring techniques helps that management to increase its efficiency.

➢ **Transportation and storage economies of scale:**

Increase in the output level causes the storage costs to fall as it leads toeconomies of increased dimensions. The transport cost fallsupto a point of fullcapacity and then its remains constant.

➢ **Pecuniary economies of scale:**

Pecuniary economies of scale refers to those savings in the expenses whichresults to the firm in the nature of relatively low prices paid for the inputs oflower costs of distribution. These savings mainly occur due to the large amountof buying made by the growing firm. Pecuniary economies of scale include all those discounts/earnings that a firm can obtain because of its large size. Thediscounts include the followings

- Lower prices of the raw materials as larger quantities are being purchased bylarger firms.

- Lower costs of capital and les interest rate because banks have great faith inlarge forms.

- Low transportation costs are incurred due to bulk transportation.

➢ **External economies:**

External economies refer to all the firms in the industry, because of growth of the industry as a whole or because of growth of ancillary industry. External economies benefits all the firms in the industry as the industry expands. The external economies can be grouped under following three types.

- **Economies of concentration :**

Because of all firms are located at one place, itis likely that there is better infrastructure in terms of approach, roads, transportation facilities such as railway lines and so on, banking and communication facilities, availabilities of skilled labour and other such factors.

- **Economies of R&D:**

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All the firms can pool their resources together to financeresearch and development activities and thus share the benefits of research. There could be a common facility to share journals newspapers and other valuable references materials of common interest.

- **Economies of welfare:**

There could be common facilities such as canteen,industrial housing, community halls, schools and colleges, employment bureau, hospitals and so on. Which can be used in common, by the employees in the whole industry

COST ANALYSIS

Cost and Revenue are the two Major factors that a profit maximizing firmneeds to monitor continuously. It is the level of cost relative to revenue that determines the firm's overallProfitability.

In order to maximize profits firms tries to increase its revenue and lower its cost. There are manydifferent types of costs that a firm may consider relevant for decision – making under varyingsituations the manner in which costs are classified or defined is largely dependent on the purposefor which the cost data are being outlined.

❖ **Fixed Cost:-**

Fixed cost refers the amount needed to purchasing of the fixed assets of the organization. These fixed costs are fixed in the short-run wither production is taken up or not. Fixed Cost is those costs which in total do not vary which changes incorrupt. Fixed costs are associated with the veryexistence of a firm's plant and therefore must be paid even if the firm's rate of output is zero such cost as interest on borrowed capital.

❖ **Variable Cost: -**

Variable cost refers the amount needed to purchasing of variable assets of the organisation .On theother hand variable costs are those costs which increase with the level of output. They includepayments for raw materials.Changes as fuel, and electricity. Wages and salaries of temporarystaff, depreciation charges, based upon the production. Production is increases the cost alsoincreases, if production decreases cost also decreases.

❖ **Marginal cost:-**

Marginal cost refers to the additional cost incurred for producing an additional unit it equals thechange n the variable cost per unit. This change is due to change in the level of output.

❖ **Explicit Costs: -**

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Payment made for the purchases of factors of production, goods and services from other firms forthe production of the commodity is known as explicit cost. There costs are also known as out of pocket cost. For ex: - Wages, Pay for raw material, Rent.

- **Implicit Costs: -**

Producer uses his own factors, also in the process of production; producers generally do not takeinto account the cost of their own factors. While calculating the expenditures, of the firm, but they should definitely be included. Their cost should be calculated on the market rate and that should be included. There are called implicit costs, because producers do not make payments to others for them.

Ex: - Rent to own land.

- **Opportunity Costs: -**

Opportunity Cost refers, to "Sacrificing the next best alternative in order to attain that alternative". This is nothing but the revenue that is lost in not utilizing the best alternative. In other wards the foregone Opportunity is considered as cost and it termed opportunity cost. "Opportunity cost of a particular product that resources, used in its production could have produced.

- **Sunk Costs:**

Sunk cost refers to those cost which is not affected by change in level of business activity. Therecosts remains same at all levels of business activity. Ex: - Preliminary expenses.

- **Urgent & Post ponable cost:-**

This classification distinguishes the cost that has priority. This is more significant when there isscarcity of funds. Urgent costs are those costs such as raw materials, wages to labours and so on, necessary to sustain the production activity. There is certain cost such as whitewashing the building and so forth which can be conveniently is postponed.

BREAK EVEN ANALYSIS:-

Break even Analysis is a technique of profit planning. It is essentially a device for integrating costs. Revenues and output of the firm in order to illustrate theprobable effects of alternative courses of action upon net profits. The economic basis of BEA originates from the cost output and revenue the difference between total revenue and total

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cost. The Breakeven point is defined as the one where profit is equal to zero total revenue equals total cost. "No profit No loss zone is BEP" {TC = TR}

- **Assumptions:-**

❖ The behavior of costs and revenues of the firm remain linear.

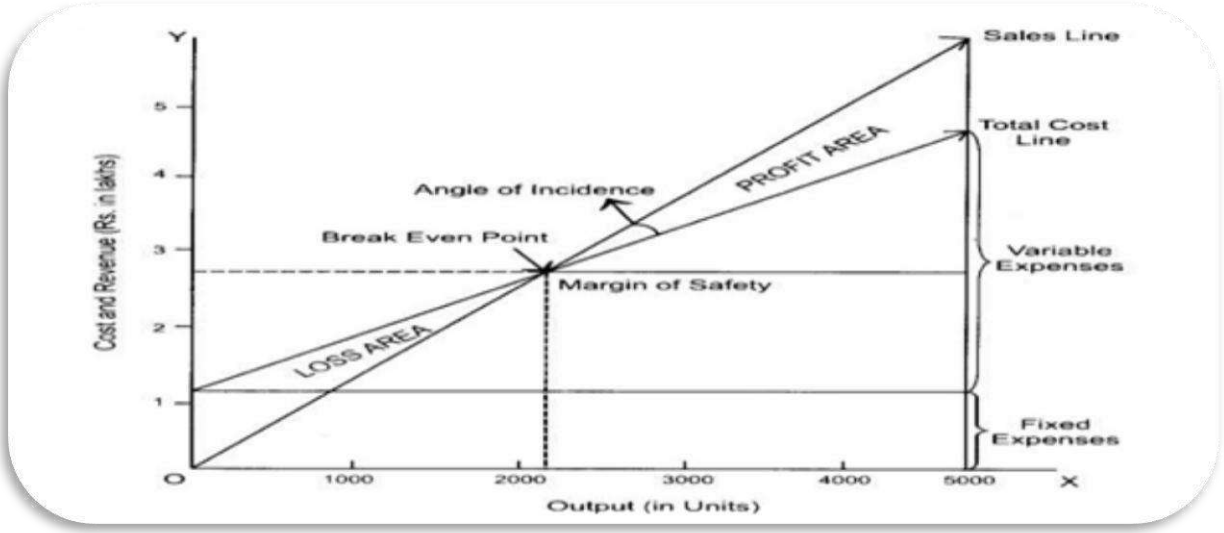
❖ Sale prices remain constant.

❖ Cost of production remains unchanged.

❖ Volume of output is the only relevant factor affecting cost.

❖ Cost can be divided into fixed and variable

The Break even Analysis is often explained with the help of Graph:



In the above graph point & denotes the Break even. Total cost is equal to total revenue and hence total profit is equal to zero

USES OF BREAK EVEN ANALYSIS :

1) Information provided by the break even chart can be understood by the mgt. more easily than

that contained in the profit and loss account and cost statement.

2) It helps to fix the sales volume required to cover a given return as capital employed.

3) It helps the forecasting of cost and profit for the product.

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4) It helps in determination of cost and revenue at various levels of output.

5) Profit abilities of various products can be studied and a most profitable product mix canbechosen.

6) It is use full to estimate the feature market for the product

7) It is use full to minimizing the cost and maximizing the profits of the organization

Limitations of B E A :-

It is not dynamic because everything is assumed as constant

- It may not gives the accurate results all the time
- It is not realistic and it does not hold well in practice.
- It is limited to the short run period only.
- It does not take into consideration the corporate tax, income tax.
- To manage and control selling cost is very difficult.

CALCULATION OF BEP

Contribution = Sales – variable cost

$$\text{P/V Ratio} = \frac{\text{Contribution per unit}}{\text{Selling price per unit}} \text{ (OR) } \frac{\text{Change in Profits}}{\text{Change in Sales}} \times 100$$

$$\text{B E P (In units)} = \frac{\text{Fixed cost}}{\text{Selling Price per unit – variable cost}}$$

$$\text{B E P} = \frac{\text{Fixed cost}}{\text{Contribution}}$$

$$\text{B E P} = \frac{\text{Fixed Cost}}{\text{P/V Ratio}}$$

Sales = Fixed cost + Variable cost + Profit

Margin of Safety:-

Margin of Safety is the difference between Actual Sales and Sales at B E P.

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$$\text{Margin of Safety} = \frac{\text{Net Profit}}{\text{Profit Volume Ratio.}}$$

Margin of Safety = Actual Sales - Break even sales

To calculating fixed cost of the organization

$$S = \frac{FC + P}{P/V \text{ RATIO}}$$

Problems:-

1) a) The information about Raj and Co., are given below.
i) Profit-Volume Ratio (P/V Ratio) is 20%
ii) Fixed costs Rs. 36,000/-
iii) Selling Price per Unit Rs.150/-
b) Calculate:
i) BEP (in Rs.)
ii) BE (in Units)

2) A form has a Fixed cost of Rs. 10,000/-, Selling price per unit is Rs. 5/-, and Variable cost per unit is Rs. 3/-.
i) Determine BEP in term of volume and also sales value.
ii) calculate the margin of safety considering that the actual production is 8,000 units

Ans:- i) BEP (Units) = 5,000/-
BEP (Rs.) = 25,000/-
ii)Margin of safety = 3,000/-

3) A metro train can carry a maximum of 36,000 passengers per annum at fair of Rs.400/-. The variable cost of passenger is Rs.150/-. When the fixed cost are Rs.25,00,000/- per annum. Find the BEP in term of no. of passengers and also in terms of fair collections.

Ans:- BEP (Units) = 10,000
BEP (Rs.) = 40,00,000/-.

4) Suresh Enterprises dealing in the supply of hardware parts of a computer the following cost data is available for two successive periods.

Particulars	Year 1	Year 2
Sales	50,000	1,20,000
Fixed cost	10,000	20,000
Variable cost	30,000	60,000

Find i) BEP ii) Margin of safety

Ans:- **Year 1:-** i) BEP = 25,000/- ii) Margin of safety = 25,000/-
Year 2:- i) BEP = 40,000/- ii) Margin of safety = 80,000/-

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5) A form has a fixed cost of Rs.50,000/-. Selling price per unit is Rs. 50/-. Variable cost per unit is Rs. 25/-. Present level of Production is 3,500
i) Determine BEP in term of volume and also sales value.
ii) Calculate the margin of safety
iii) What is the change in BEP and margin of safety if fixed cost increase from Rs.50,000/- to 60,000/-.

Ans:- If Fixed cost is Rs.50,000/-. BEP (Units) = 2,000, BEP (Rs.) = 1,00,000/-. Margin of safety = 1,500.
If Fixed cost is Rs.60,000/-. BEP (Units) = 2,400, BEP (Rs.) = 1,20,000/- Margin of safety = 1,100.

6) Determine BEP

YEAR	SALES	PROFIT
I	1,50,000	20,000
II	1,70,000	25,000

Ans:- P/v Ratio = 25% , Fixed cost = 17,500, BEP = 70,000

7) A Company reported the following Results for Two years.

YEAR	SALES	PROFIT
1	40,00,000	4,00,000
2	50,00,000	6,00,000

Ans:- P/v Ratio = 20% , Fixed cost = 4,00,000, BEP = 20,00,000,
Margin of safety = 30,00,000

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UNIT – III

INTRODUCTION TO MARKETS & PRICING POLICIES

INTRODUCTION :-

Market is a place where buyers and sellers exchange their goods and its cost. **An Industry** is the set of all firms making the same product. The output of an industry is the run of the output of its films. A **firm** is a unit in an industry.

Definition:-

An arrangement whereby buyers and sellers come in close contact with each other directly or indirectly to sell and buy goods is described as market.

Prof.Jevonsdefines Market as "anybody of persons who are dealing in any commodity".

Features of Market :-

- ✓ More no of sellers and buyers are participating to exchange goods services.
- ✓ If refers to the whole are of operation of demand and supply.
- ✓ Products sold in a market can be homogeneous or differentiated.
- ✓ The market in which the commodity it bought and sold must be well organized, tradingmustbe continuous.
- ✓ There are many competitors in the market.
- ✓ Normal and abnormal profits gain by the market sellers

Classification of markets is made on the basis of

i. Area – Local, Regional, National, International.
ii. Time – Very short period, Short period, Long period, Very long period/Secular.
iii. Nature of Transaction – Sport Market, Future Market
iv. Regular – Regulated, Unregulated.
v. Volume of Business – Wholesale, Retail.
vi. Position of Sellers – Primary, Secondary and Technical wholesales
vii. Type of confutation – Perfect, Imperfect, Monopoly, Monopolistic, Oligopoly, Duopoly.

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MARKET COMPETITION / CLASSIFICATION:-

Given below different types of competition. A gap is shown between perfect competition and imperfect competition.

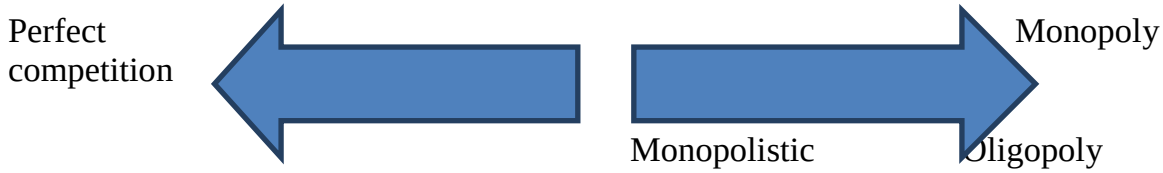

Figure: Types of competition

Domestic Market:

It deals with demand and supply of a commodity within the country. All the products are product of supplied in the local area is called domestic as local market. Ex. Vegetable market/Milk market.

Foreign Market :

It deals with demand and supply of the country's commodity in foreign countries goods are produced as it can be exported to the other nations like foreign country's market called foreignmarket. Ex: Wheats.

Capital Market:

It deals in funds to finance fixed assets. The transactions in shares and bonds belong to the domainof capital market. In other words the market which deals the exchange of funds and shares Ex:Share market. This market is also called financial market. All financial institutions can providefunds to the business organizations

Perfect Market:

It characterized by a large number of buyers and sellers of an essentially identical product eachmember of the market, whether buyer or seller is so small in relation to the total industry volumethat he is unable to influence the price of the product individual buyers and sellers are essentiallyprice takers. It requires that all the buyers and sellers must posses' perfect knowledge about theexisting market conditions especially regarding the market price, quantities and source of supply.

Imperfect Market:

In this market just one producer of a product the firm has substantial control over the price. Further if product is differentiated and if there are no threats of new firms entering

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thesamebusiness a monopoly firm can manage to earn excessive profits aver a long period if doesn'trequires knowledge about the existing market conditions .

Duopoly:

In this market situation there are two firms control the entire supply of the product naturally thereis a great scope for collusion between the two firms and also possibility of cutthroat competition between them. The two firms are interdependent as regards their price-output decisions

Oligopoly:

Oligopoly means few poly means sellers oligopoly is a market structure in which a small numberof firms account for the whole industry's output in this market few number of seller and more no of buyers are going to participate in the market.

Perfect Market:

It characterized by a large number of buyers and sellers of an essentially identical product, each member of the market whether buyer or seller is so small in relation to the total industry volumethat he is unable to influence the price of the product. Individual buyers and sellers are essentiallyprice takers. It requires that all the buyers and sellers must posses' perfect knowledge about the existing market conditions especially regarding the market price, quantities and source of supply.

Characteristics :

The following conditions must exist for a market structure to be perfectly competitive there is also the district feature or distinguishing markets of perfect competition

- **Large no of sellers:**

A perfectly competitive market structure is basically formed by large number of actual andpotential firms and sellers. Their number is sufficiently large and as the size of each firm isrelatively small. So the individual seller's or firm's supply is just a fraction of the market supply.

- **Large no of buyers:**

There is very large number of actual and potential buyers so that each individual buyer's demandconstitutes just a fraction of the total market demand.

- **Product homogeneity:**

The commodity supplied by each in a perfectly competitive market

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ishomogeneous that means the product of each seller is virtually standardized i.e. each seller my sell different types of productsdifferent sizes, quantities and qualities of goods in the market.

- **Free entry and exit:**

In a perfectly competitive market the super normal profits in the short period induce the new firmsto enter in to the market. At the same time the exciting firms incurring losses in the short term andthey leave the market. Therefore due to freedom of entry and exit each firm in a competitive market can earn only normal profit in the long period

- **Perfect knowledge of market:**

Perfect competition requires that all buyers and sellers must possess perfect knowledge about theexisting market conditions especially regarding the market price, qualities, quantities and source of supply.

- **Government Non interference:**

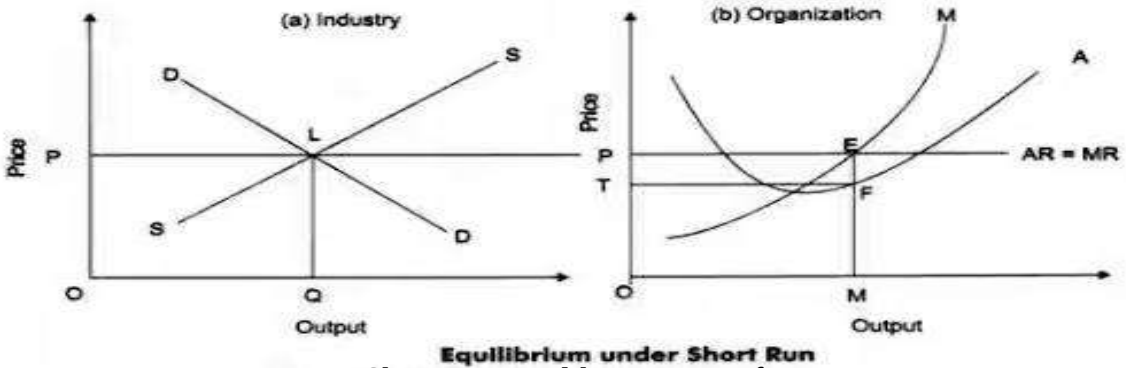
Perfect competition also implies that there is no government interference in the working of market economy. That is to say there are no tariffs, subsidies, rationing of goods, and control on supply ofraw material, licensing policy or other government interference.

PRICE –OUTPUT DETERMINATION IN PERFECT MARKET:

Under perfect competitive market price of any commodity is mainly decide by the demand and supply of all the firms in the market. Time factor plays a significant role in dividing price of commodity.

Equilibrium point is a state that refers to a condition where a firm enjoys maximum profits and has no incentive either to reduce or increase its output level. The conditions for equilibrium are a) Marginal Revenue (MR) must be equal to Marginal Cost (MC),
b) Marginal Cost curve should interest marginal revenue curve near to its bottom.

Pricing in short-run : Figure



Short run equilibrium in perfect competition

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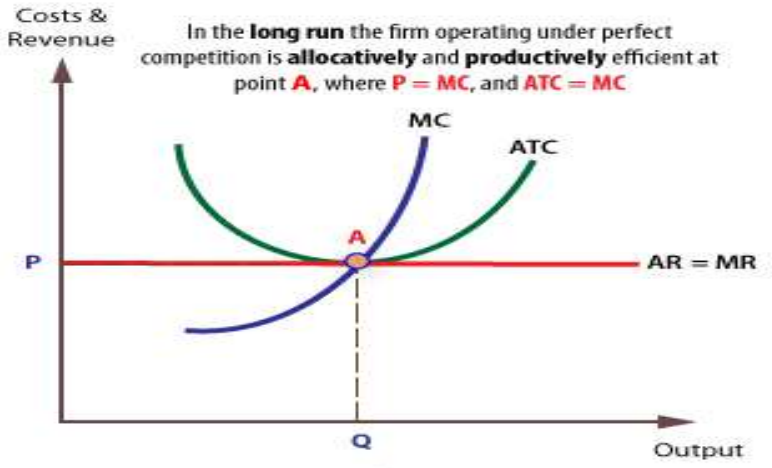
In short-run a firm can earn profit or make loss depending on price and cost conditions provided the firm is to produce as much as that can be sold at a given price. If the market price is P or more, the firm is willing to sell otherwise not. The supply curve is portion of MC beginning from F. The point E is the equilibrium price i.e., MR=MC.

Pricing in Long-run : figure



Pricing under long-run in P.A.Q

Point A shows Long-run equilibrium position. When the market price goes below LAC, the firm can not recover its expenses and quit the industry.

PRICE –OUTPUT DETERMINATION IN MONOPOLY :

The monopolistic firm attains equilibrium when its marginal cost becomes equal to the marginal revenues. The monopolist always desires to make maximum profits. He makes maximum profit when MC=MR. He goes on increasing his output it his revenue exceeds his cost but when the costs exceeds the revenue the monopolist firm incur losses. Hence the monopolist curtails his production. He produces up to that point where additional cost is equal to the additional revenue MR=MC. That point is called equilibrium point the price output determination in monopoly may be explained with the help of a diagram

REVENUE ANALYSIS IN MONOPOLY

Units sold	Price	Total revenue	Average revenue	Marginal revenue
1	20	20	20	20
2	19	38	19	18
3	18	54	18	16
4	17	68	17	14
5	16	80	16	12

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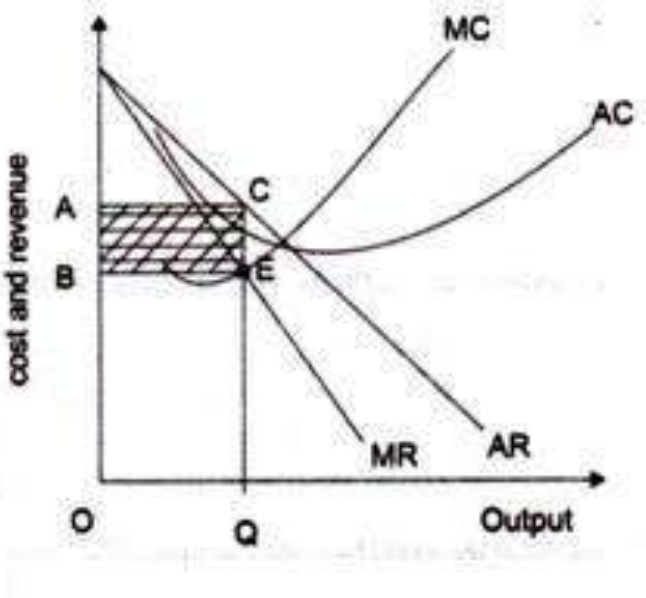
Under monopoly market the seller has to reduce the price in order to increase the sales.the AR,MR curves slops downwards MR tries to bellow AR

Assumptions:

1) One Seller /Producer

2) MC=MR

3) Price Discriminations



Price-Output Determination in Monopoly

In the diagram the equanimity supplied or demanded is shown along X axis, the cost or revenue isshown along Y axis, AC and MC are average cost and Marginal cost curve respectively AR & MRcurves slope downwards from left to right. AC and MC are U shaped curves. The monopolisticfirm attains equilibrium when it's MC=MR under monopoly the MC curve may cut the MR curvefrom 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 isprofits will be maximized. Profit will diminish if the production is continued beyond this point.

CHARACTERISTICS OF MONOPOLISTIC COMPETITION:

The following are the characteristics of monopolistic competition market.

a) Existence of Many firms
b) Product differentiation
c) Large number of Buyers

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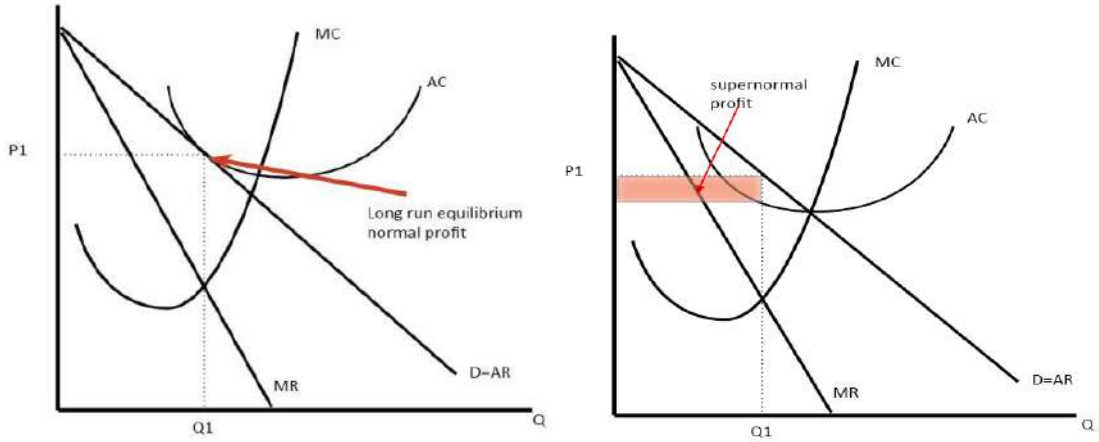
d) Free entry and exist of firms
e) Selling costs – cost on Advertising and sales promotion
f) Imperfect knowledge
g) The group – Homogeneous , Heterogeneous



DUOPOLY AND OLIGOPOLY :

When there are two monopolists who share the monopoly power then it is called duopoly. It may be of two types – duopoly without product differentiation and duopoly with product differentiation.

Under duopoly without product differentiation, there are two monopolists selling an identical commodity. There is no product differentiation. There is also a possibility for collusion. They may agree on price or divide the market for goods. Suppose, if there is no agreement between the two, a constant price war will emerge. In this case they will earn only normal profits. If their cost are different, the one with lower costs will squeeze out the other and a simple monopoly would result. The best course for the duopolists will be to fix the monopoly price and share the market and profits. In the short run, duopoly price may be lower than the competitive price. In the long run, the price may be somewhere between the monopoly price and the competitive price.

When there is product differentiation, each producer will have his own customers. There is no danger of price war. There is no agreement. Since products are differentiated the firm with better product will earn supernormal profits.

OLIGOPOLY :

Oligopoly is a situation in which few large firms compete against each other and there is an element of interdependence in the decision making of these firms. A policy change on the part of one firm will have immediate effects on competitors, who react with their counter policies.

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Featyres :

Following are the features of oligopoly which distinguish it from other market structures:

1. **Small number of large sellers :**

The number of sellers dealing in a homogeneous or differentiated product is small. The policy of one seller will have a noticeable on market, mainly on price and output.

2. **Interdependence :**

Unlike perfect competition and monopoly, the oligopolistic is not independent to take decision. The oligopolistic has to take into account the actions and reactions of his rivals while deciding his price and output policies. As the products of the oligopolistic are close substitutes the cross elasticity of demand is very high.

3. **Price rigidity :**

Any change in price by one oligopolistic invites retaliation and counter – action from others, the oligopolistic normally sticks to one price. If an oligopolistic reduces his price, his rivals will also do so and therefore, it is not advantageous for the oligopolistic to reduce the price.

4. **Monopoly element :**

As products are differentiated the firms enjoy some monopoly power. Further, when firms collude with each other, they can work together to raise the price and earn some monopoly income.

5. **Advertising :**

The only way open to the oligopolists to raise his sales is either by advertising or improving the quality of the product. Advertisement expenditure is used as an effective tool to shift the demand in favour of the product. Quality improvement will also shift the demand favourably. Usually both advertisement as well as variations in designs and quality are used simultaneously to maintain and increase the market share of an oligopolist.

6. **Group behavior :**

The firms under oligopoly recognize their interdependence and realize the importance of mutual cooperation. Therefore, there is a tendency among them for collusion. Collusion as well as competition prevail in the oligopolistic market leading to uncertainly and indeterminateness.

PRICING

Pricing is not an end in itself pricing is a mean to an end .therefore the firm must explicitly laydown its pricing objectives. The firm's overall objectives serve as guiding principle to pricing thusfirm's business objectives are normally spelled out as the objectives of its price policy

Objectives of pricing:

- ✓ To survival of product in the market
- ✓ To maximization of sales

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- ✓ To capture high share value in the market
- ✓ To earn more profits
- ✓ To return on investment
- ✓ To service motive

METHODS OF PRICING:

Cost Based Pricing - Cost Plus Pricing:

This is also called full cost or markup pricing here the average cost at normal capacity of output isascertained and then a conventional margin of profit is added to the cost to arrive at the price. Inother words find out the product units total cost and add a percentage of profit to arrive at theselling price

Marginal Cost Pricing:

In marginal cost pricing selling price is fixed in such a way that it covers fully the variable ormarginal cost and contributed towards recovery of fixed cost fully or partially depending upon themarket situations in times of stiff competition marginal cost offers a guide to me to how far theselling price can be lowered

Competition Based Pricing --Sealed Bid Pricing:

This method is more popular in tenders and contracts. Each contracting from quotes its price in asealed cover called 'tender' all the tenders are opened on a scheduled date and the person whoquotes the lowest price other things remaining the same is awarded the contract.

Going rate pricing:

Here the price charged by the firm by based upon the cost of the production (or) the total cost of the industry where costs are particularly difficult to measure this may seem to be the logical first step in rational pricing policy.

Strategy Based Pricing - Market Skimming:

When the product is introduced for the first time in the market company follows this method under this method the company fixes a very high price for the product the main idea is to charge thecustomer maximum possible. In this situation all cannot afford except a very few. As the timepasses by the price comes down and more people can afford to buy.

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Market penetration:

This is exactly opposite to the market skimming method. Here the price of the product is fixed so low that the company an 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 the making profits in the short-run.

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 charge foreach unit purchased. Entertainment houses such as country clubs, athletic clubs and health clubs usually adopt this strategy they charge a fixed initiation fee plus charge per month or per visit. to use the facilities.

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 four santoor soaps in a single pack illustrate thispricing method. By selling certain number of units of profit maximization price on each package.it is generally the total value the consumer receives for the package. Including consumer surplus.

Peak load pricing:-

During seasonal period when demand is likely to higher, a firm may enhance profits by peal load pricing. The firm philosophy is to charge a higher price during peak times than is charged during off-peak times.

Cross subsidization:-

In case where demand for two products produced by a form is interrelated through demand or cost, 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 newproduct development and diversification into new product markets.

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UNIT – IV
BUSINESS ORGANIZATIONS AND CAPITAL BUDGETING

BUSINES ORGANIZATIONS

Human being wish to have a satisfactory life in order to do so, they perform a number of activities such activates are guided by objectives that provide the greater satisfaction; different people do different things to attain maximum satisfactions. If the activities involve production, purchase and sale of goods desired by the people such activities are termed as "Business".

Definition of Business:-

"Business may be defined as the regular production or purchase and sale of goods with the object of earning profits and acquiring wealth through satisfaction of human wants" In the words ofPetersen and plowman, "Business may be defined as activities is which different person exchangesomething of value whether goods or services for mutual gain or profit"

Characteristics of Business:-

From the above definitions, Business will have the following characteristics.

1) Easy to start and easy to close: - The form of business should be such that it should be easy to start and easy to close. There should not be hassles or long procedures in the process of setting upbusiness or closing the same.

2) Division of labour:- there should be possibility to divide the work among the available ownersthe idea is to poll the expertise of all the people in business and run the business most efficiently

3) Liability: - the liability of the owners should be limited to the extent of money invested in the business. It is better if their personal properties are not brought into business to make up the losses of the business.

4) Exchange: - Business involves exchange of goods and services for money or money's worth.On way transactions such as gift given by one person to another do not constitute business.

5) Continuity of Operation: - Business pre supposes continuity of operations these should be a regular sequence of dealing isolated transaction such as sale of house do not constitute business.

6) Profit Motive: - Business activity is motivated by desire to earn profit business has other objectives apart from. But profit is desired as a fair compensation for the efforts of

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the businessman.

7) Risk: - Every business involves some element of uncertainty in the operating environment. For Ex; one may not be able to sell all the goods produced or purchased, amount due from credit sales may not be collected etc. Risk is an inherent part of business

8) Organized Activity: - Business needs to be properly organized to be successful. There is a need for clear definition of roles and responsibilities of various people. Systems are designed and implemented so that there is co-ordination between the various activities.

9) Taxation: - One of the main sources of income to the government was tax .Based on the level of the income business organizations want to pay the tax to the government more income means more tax less income means less tax.

10) Secrecy: - The form of business organization you select should be such that it should permit to take care of the business secrets. We know that century old business units are still surviving only because they could successfully guard their business secrets

CLASIFICATION OF BUSINESS

Business undertaking can be classified on different criteria, such as nature of business and theactivities involved. They can also be classified on the basis of ownership of the business.Businessmay be owned by – public authority such as state government or central government such business are called "public sector enterprises". Alternatively, undertaking owned by private citizens is known as 'private enterprises" private enterprises could be owned by a single person or by a group of persons.

1) Sole trader or Proprietorship

2) Partnership

3) Joint Stock Company

SOLE TRADER (OR) PROPRIETORSHIP:

Sole trading business is the simplest and oldest and natural from of business organization. It is also called sole proprietorship "sole" means one. Sole trader impels that there is only one trader who is the owner of the business. Such person introduces his own capital or borrows from others. uses his own skills or employs people working under his direction, is in personal touch with the routing of the business, takes all the decisions concerning the business and is completely responsible for the profits made or losses incurred by the business .the person is called a sole trader. This business is called one man organization

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Main feature or characteristics:-

1. It is easy to start a business under this from and also easy to close

2. He introduces his own capital. Sometimes, he may borrow, if necessary.

3. He is completely responsible for the profits made or losses incurred by the business

4. Centralization of authority sole trading is the one person show. Total authority can be enjoyed by him only.

5. Lack of system sole trader organization is largely unorganized. There are no clarity defined roles and responsibilities.

6. Small size all sole trader concerns are smaller in size this is mainly because the amount of capital that can be invested by a single person is limited

Merits of Sole Trading:

1. The establishment of a sole trading is very easy and simple. There is no need for detailed legal formalities to from such a concerns.

2. It is very easy to carry on business operations. The day today working is free from legal interference. There is flexibility in operation.

3. Quick decision making he can take decisions very fast and implement them promptly.

4. Incentives to work the sole trading form of business provide the best incentives to improve performance. All the profits resulting from efforts made by the proprietor are enjoyed by him.

5. Self employment sole trading business organization provides an alternative for capable people who are not able to get employment; it serves a useful social purpose as lack of employment can result in of frustration among such people, leading to crime.

6. Direct contact with customer the sole trading business organization provides direct contact with customers. He is therefore able to understand their changing needs better. He can ascertain their taste, attitude and habits and understand their difficulty.

7. Secrecy business secrets can well be maintained because there is only one trader.

8. Total control the ownership and management and control are in the hands of the sole trader and hence it is easy to maintain the hold on business.

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9. Law rate of Tax the rate of income tax was very low compare to other business organizations

10. Easy to close the sole trader can decide to close down his business at any time he does not have to go through lengthy legal procedures or obtain approvals.

De - Merits of Sole Trading;

1. Limited capital the amount of capital that a person can invest in a business is limited moreoverhe cannot get unlimited credit.

2. Unlimited liability the creditor of the business concern can invest the private property of the businessman in settlements of their dues. Thus, there is a possibility that the proprietor maybecome a pauper because of one single mistake in business.

3. Uncertainty there is no continuity in the duration of the business on the death. Insanity or insolvency the business may come to an end.

4. Limited growth potential this firm is suitable for only small size, One-man-show type of organization. This may not really work out for growing and expanding organization.

5. Low bargaining power the sole trader is in the receiving end in terms of loans or supply of raw materials. He may have to compromise many times regarding the terms and conditions of purchase of materials of borrowing loans from the finance houses or banks.

PARTNERSHIP

Meaning and Definition:

According to the Oxford Dictionary for the Business World. "Partner is a person who shares or takes part in activities of another person. Partnership is an association of two or more people formed for the purpose of carrying on a business".

According to Indian Partnership Act 1932"Tthe business which is organized by two are more than the two persons for the purpose of distribution of profit and losses equally"

MAIN FEATURES OR CHARACTERISTICS

1. No. of Persons: One person cannot have a partnership. It is a joint effort of at least two persons to start a partnership.

2. Restriction on Number of Partners: Unlike a Joint Hindu Family or a Cooperative Society, there is a restriction on the maximum number of people who can start a partnership. The number of partners cannot exceed 20 persons, and in case of banking business, the maximum number of partners is restricted to 10 persons.

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3. Contractual Relationship: The relationship of partners is bound by the legal agreement or contract entered into by each of them. This agreement is called a 'Partnership Deed'.

4. Sharing of Profits: The intention of partners is to earn profit through collective effort. The profits earned are shared by partners as per the terms agreed upon by them. Any loss arising out of business transactions is also shared by the partners. It is not necessary that profit or loss is to be shared on the basis of capital contributed by the partners.

5. Principle Agent relationship: Each partner is both an agent and a principal of the partnership firm. The partner is a principal because he is responsible for his own acts and the acts of other partners. He is an agent of the firm as he can act on behalf of other partners and bind them with his acts.

6. Utmost Good Faith: Partners can bind each other by their action. Hence, each partner must be true to all other partners and disclose all the information in his possession to the other partners. Thus, utmost good faith is very crucial as the business cannot be run without mutual trust.

MERITS:

1. Ease of Formation: Any two persons capable of entering into contract can start partnership.The partnership deed can be oral or written. Registration is not compulsory. Thus, partnership is very easy to form.

2. Flexibility of Operations: There is considerable freedom in carrying out business operations. There is no need for taking approvals from Government or any other authority, to change the nature scope or location of the business.

3. Greater Financial Resources: Partnership combines the financial strength of all partners, as the liability of partners is joint and several. Not only is the ability to contribute capital greater, it also enhances the borrowing capacity of the firm.

4. Incentive to Hard work: Partners have share in the profits of the firm. Partners put in hard work and try to increase profits of the firm. A sincere and committed effort brings in extrarewards.

5. Risk Reduction: The profits and losses are shared by all partners. Similarly, if the firm is unable to meet any of its payment obligations, all partners are responsible. Thus, partnership offers risk reduction as the risk is spread across partners.

6. Maintenance of Secrecy: A partnership firm is a closely held business. It is not required by lawto share its performance and position with others. Thus, all knowledge about the firm is restricted to only the partners of the firm.

7. Personal contacts with Staff and Customers: A partnership concern is a relatively small

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organization, whose activities can be managed by a group of people. Thus, partners keep in close contact with customers and staff. They are thus able to note the changing tastes and attitudes and react faster to such changes.

8. Early Dissolution: It is very easy to dissolve the partnership firm. Any partner can ask for dissolution of firm by giving a 14 day notice. The firm can be dissolved on death, insolvency or lunacy of any partner. No legal formalities are required.

DEMERITS

1. Unlimited Liability: Partners become fully liable for all claims against the firm to an unlimited extent. The partner might lose all the savings of his life on account of a loss or a mistake inbusiness.

2. Restriction on Transfer of Interest: One of the golden rules of any investment is that there must be an easy exit. If partner needs money, or is not in agreement with others, he cannot transfer his interest in the firm to outsiders without the consent of outsiders.

3. Delay in Decision making: While day to day management is handled by one or more partners independently, any major decision requires the consent of all partners. A discussion and consensus on decision to be taken might be time consuming, resulting in the firm losing out on prompt action.

4. Lack of Public Confidence: The affairs of the firm are not subject to public scrutiny. The performance and position of the firm is not published. Hence, the firm does not enjoy any public confidence.

5. Joint and several liability:- From the point of view of liability, a partnership is even worse than sole proprietorship, because a partner is liable to the extent of his private property, not only for his own mistakes, but also for the mistakes, and dishonesty of the other partners. This is because partners are jointly and severally liable for the debts of the firm.

Considering the merits and demerits of partnership firm, it is an ideal form of organization for small scale and medium size business having a limited market needs, limited capital and limited managerial skill. Most of the service enterprises such as transport and warehousing are also usually organized on partnership basis.

JOINT STOCK COMPANY

The joint stock company emerges form the limitations of partnership such as joint and several liability, unlimited liability, limited resources and uncertain duration and so on. The system of joint stock company has been very useful for large undertakings which require huge capital. Here the capital is divided into certain units. Each unit is called a share. The price of each share is kept so low that even a common man can find it comfortable to pick it up!

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DEFINATION:

The joint stock company form of organization as "an association of many persons who contribute money or money's worth to a common stock and employ it for a common purpose. The common stock refers to the share capital of the company. The persons who contributed it or to whom it belongs are members. The proportion of capital to which each member is entitled is his share. Shares are always transferable, although the right to transfer is often more or less restricted." ------ **Lord Justice Lindley**

A company as "a person artificial, invisible, intangible and existing only in the eyes of law". --------- **Chief Justice Marshall**

"A company having permanent paid up or nominal share capital of fixed amount divided into shares, also of fixed amount, held and transferable as stock and formed on the principles of having in its members only the holders of those shares or stocks and no other persons" – **Indian Companies Act, 1956**.

Merits :-

1. Permanent existence:- The life of the company is permanent. It is not affected by the death, incapability, lunacy and insolvency of the shareholders. It has separate legal entity. The ownership and the management of the company changes smoothly without the dissolution of it company.

2. Limited liability:- The maximum liability of the shareholders of the company is limited to the face value of shares held by him. The personal assets of the shareholders cannot be attached, even if the company is unable to meet the claims of outsiders.

3. Availability of large capital:- The capital of the company is contributed by its shareholders, whose number is unlimited as much as the company requires. The face value of shares being nominal and the liability of shareholders being limited, these shares are easily sold, and the required capital is collected.

4. Transferability of shares:- The shares of the company are transferable easily. Whenever the shareholder wants the money back, he can obtain it by selling his shares. This special feature also ensures that the company will not be required to refund the capital. The shares of the company are purchased and sold in the stock exchange in the open market.

5. Economics of large scale:- The company form of business organization assumes very large size because of huge share capital and professional management. This is why; the company enjoys internal and external economies of large scale enterprise.

6. Tax relief:- The laws offer certain developmental rebates and concessions on certain commodities of export promotion and for the establishment of industries in backward regions. The company is charged income tax at flat rate. As such the tax liability on

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higher income is comparatively lower.

7. Diffused risk:- The risk of business is shared among innumerable shareh0olders, so every shareholder, has to bear nominal risk. This is not the case in proprietorship and partnership, where the loss to be borne by the individual proprietor and limited number of partners 0of a firm individually or collectively.

Demerits:-

The company suffers from the following limitations:

1. Legal formalities: Formation of company requires a lot of legal formalities and filing of severaldocuments. It is time consuming and expensive. Delay in filing of reports invites punishment. All these formalities make the formation of company difficult.

2. Fraud by promoters: Sometimes promoters of companies play fraud in the formation of company. They conceal material facts and cheat the shareholders. They manipulate the books ofaccounts in their favor. Promoters are rich people. They gain the experience at the cost of investors' funds, because they are not going to lose anything.

3. Speculation in shares: The shares of the company are purchased and sold in the open market. This practice encourages speculation, an immoral activity.

4. Lack of secrecy: It is very difficult to maintain secrecy in the company. Every matter has to bediscussed in the board of directors meeting or in the annual general meeting of shareholders. This is why, there is delay in the decisions and sometimes opportunities are lost.

5. Delay in Decision making: In company form of organization no single individual can make a policy decision. All important decisions are taken either by the board of directors or shareholders. Decision making process is time consuming.

PUBLIC PRIVATE PARTNERSHIP :

The Public Private Partnerships (PPPs) have emerged as a very feasible, viable, and growing mode of creating infrastructure for our country. Though public sector will continue to play a dominant role in building of infrastructure, the PPPs have enabled us to channelize private sector investment in infrastructure. Keeping in mind that our country is still starved of adequate infrastructure required for high level development, the opportunities for the growth of joint venture between both the sectors are huge and desirable. The anticipated percentage participation of the private sector in the twelfth plan is much higher than the eleventh plan. The Indian PPP scenario as it stands today presents an optimistic picture. However several bottlenecks and challenges have been encountered in PPP model development. Some of the major challenges also relate to regulation and availability of finance for the private sector. The Government of India on its part has been fully aware of the benefits that such

partnerships can offer to our country and has been taking steps to remove some of these problems. The present study is an attempt to peek into the scope, future growth and risks that such partnerships may hold for our country.

In order to appreciate the various definitions of Public Private Partnership (PPP), we can begin by looking at the meaning of these three words as defined in the dictionary in the context of our purpose of study.

The word Public means "of or provided by the state rather than an independent, commercial company."

The word Private means "(of a service or industry) provided or owned by an individual or an independent, commercial company rather than the state."

Finally, the word Partnership means "an arrangement in which parties agree to cooperate to advance their mutual interests".

Public Private Partnership means an arrangement between a government / statutory entity / government owned entity on one side and a private sector entity on the other, for the provision of public assets and/or public services, through investments being made and/or management being undertaken by the private sector entity, for a specified period of time, where there is well defined allocation of risk between the private sector and the public entity and the private entity receives performance linked payments that conform (or are benchmarked) to specified and pre-determined performance standards, measurable by the public entity or its representative.

MODELS OF PPP

A wide spectrum of PPP models has emerged. These models vary mainly by:

• Ownership of capital assets
• Responsibility for investment
• Assumption of risks; and
• Duration of contract.
• The PPP models can be classified into five broad categories in order of generally (but not always) increased involvement and assumption of risks by the private sector. The five broad categories are:
• Supply and management contracts
• Turnkey contracts
• Affermage/Lease
• Concessions
• Private Finance Initiative (PFI) and Private ownership. The basic features of these five categories of PPP models are shown in

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Each of these five categories has many variants. A categorization of the PPP/PSP models together with their main characteristics is shown in table 1. While the spectrum of models shown in the table are possible as individual options, combinations are also possible such as, a lease or (partial) privatization contract for existing facilities which incorporates provisions for expansion through Build-Operate-Transfer. In fact, many PPP projects of recent times are of combination type.

Table 1. Classification of PPP models

Broad category	Main variants	Ownership of capital assets	Responsibility of investment	Assumption of risk	Duration of contract (years)
Supply and management contract	Outsourcing	Public	Public	Public	1-3
	Maintenance management	Public	Public/Private	Private/Public	3-5
	Operational management	Public	Public	Public	3-5
Turnkey		Public	Public	Private/Public	1-3
Affermage/Lease	Affermage	Public	Public	Private/Public	5-20
	Lease*	Public	Public	Private/Public	5-20
Concessions	Franchise	Public/Private	Private/Public	Private/Public	3-10
	BOT**	Public/Public	Private/Public	Private/Public	15-30
Private ownership of assets and PFI type	BOO/DBFO	Private	Private	Private	Indefinite
	PFI***	Private/Public	Private	Private/Public	10-20
	Divestiture	Private	Private	Private	Indefinite

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- Build-Lease-Transfer (BLT) is a variant.
- Build-Operate-Transfer (BOT) has many other variants such as Build-Transfer-Operate (BTO), Build-Own-Operate-Transfer (BOOT) and Build-Rehabilitate-Operate-Transfer (BROT).
- The Private Finance Initiative (PFI) model has many other names. In some cases, asset ownership may be transferred to, or retained by the public sector

The main features of each of the broad categories of the PPP models are discussed next.

Supply and management contracts

A management contract is a contractual arrangement for the management of a part or whole of a public enterprise (for example, a specialized port terminal for container handling at a port or a utility) by the private sector. Management contracts allow private sector skills to be brought into service design and delivery, operational control, labour management and equipment procurement. However, the public sector retains the ownership of facility and equipment. The private sector is assigned specified responsibilities concerning a service and is generally not asked to assume commercial risk.

The private contractor is paid a fee to manage and operate services. Normally, the payment of such fees is performance-based. Usually, the contract period is short, typically three to five years[4]. But the period may be longer for large and complex operational facilities such as a port or an airport.

The main pros and cons of this model include the following:

Pros:

- Can be implemented in a short time.
- Least complex of all PPP models.
- In some countries, politically and socially more acceptable for certain projects (such as water projects and strategic projects like ports and airports).

Cons:

- Efficiency gains may be limited and little incentive for the private sector to invest.
- Almost all risks are borne by the public sector.
- Applicable mainly to existing infrastructure assets.

Turnkey

Turnkey is a traditional public sector procurement model for infrastructure facilities. Generally, a private contractor is selected through a bidding process. The private contractor designs and builds a facility for a fixed fee, rate or total cost, which is one of the key criteria in selecting the winning bid. The contractor assumes risks involved in the design and

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construction phases. The scale of investment by the private sector is generally low and for a short-term. Typically, in this type of arrangement, there is no strong incentive for early completion of the project. This type of private sector participation is also known as Design-Build.

The main pros and cons of this model include the following:

Pros:

- Well understood traditional model.
- Contract agreement is not complex.
- Generally, contract enforcement is not a major issue. *Cons:*
- The private sector has no strong incentive for early completion.
- All risks except those in the construction and installation phases are borne by the public sector.
- Low private investment for a limited period.
- Only limited innovation may be possible.

Affermage/Lease

In this category of arrangement, the operator (the leaseholder) is responsible for operating and maintaining the infrastructure facility (that already exists) and services, but generally the operator is not required to make any large investment. However, often this model is applied in combination with other models such as build-rehabilitate-operate-transfer. In such a case, the contract period is generally much longer and the private sector is required to make significant investment.

The arrangements in an affermage and a lease are very similar. The difference between them is technical. Under a lease, the operator retains revenue collected from customers/users of the facility and makes a specified lease fee payment to the contracting authority. Under an affermage, the operator and the contracting authority share revenue from customers/users.

In the affermage/lease types of arrangements, the operator takes lease of both infrastructure and equipment from the government for an agreed period of time. Generally, the government undertakes the responsibility for investment and thus bears investment risks. The operational risks are transferred to the operator. However, as part of the lease, some assets also may be transferred on a permanent basis for a period which extends over the economic life of assets. Fixed facilities and land are leased out for a longer period than for mobile assets. Land to be developed by the leaseholder is usually transferred for a period of 15-30 years.

The main pros and cons of this model include the following:

Pros:

- Can be implemented in a short time.

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- Significant private investment possible under longer term agreements.
- In some countries, legally and politically more acceptable for strategic projects like ports and airports.

Cons:

- Has little incentive for the private sector to invest, particularly if the lease period is short.
- Almost all risks are borne by the public sector.
- Generally used for existing infrastructure assets.
- Considerable regulatory oversight may be required.

Concessions

In this form of PPP, the government defines and grants specific rights to an entity (usually a private company) to build and operate a facility for a fixed period of time. The government may retain the ultimate ownership of the facility and/or right to supply the services. In concessions, payments can take place both ways: concessionaire pays to government for the concession rights and the government may pay the concessionaire, which it provides under the agreement to meet certain specific conditions. Usually, such payments by the government may be necessary to make projects commercially viable and/or reduce the level of commercial risk taken by the private sector, particularly in a developing or untested PPP market. Typical concession periods range between 5 to 50 years.

The main pros and cons of this model include the following:

Pros:

- Private sector bears a significant share of the risks.
- High level of private investment.
- Potential for efficiency gains in all phases of project development and implementation and technological innovation is high.

- Highly complex to implement and administer.
- Difficult to implement in an untested PPP market.
- May have underlying fiscal costs to the government.
- Negotiation between parties and finally making a project deal may require long time.
- May require close regulatory oversight.
- Contingent liabilities on government in the medium and long term.

In a Build-Operate-Transfer or BOT type of concession (and its other variants namely, Build-Transfer-Operate (BTO), Build-Rehabilitate-Operate-Transfer (BROT), Build-Lease-Transfer (BLT) type of arrangement), the concessionaire makes investments and operates the facility for a fixed period of time after which the ownership reverts back to the public sector. In a BOT modal, operational and investment risks can be substantially transferred to the concessionaire.

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In a BOT model, the government has, however, explicit and implicit contingent liabilities that may arise due to loan guarantees and sub-ordinate loans provided, and default of a sub-sovereign government and public or private entity on non-guaranteed loans.

By retaining ultimate ownership, the government controls the policy and can allocate risks to parties that are best suited to assume or remove them. BOT projects may also require direct government support to make them commercially viable.

The concessionaire's revenue in a BOT project comes from managing and marketing of the user facilities (for example, toll revenue in a toll road project) and renting of commercial space where possible. Concessions for BOT projects can be structured on either maximum revenue share for a fixed concession period or minimum concession period for a fixed revenue share, a combination of both, or only minimum concession period.

Private Finance Initiative (PFI)

In the private finance initiative model, the private sector remains responsible for the design, construction and operation of an infrastructure facility. In some cases, the public sector may relinquish the right of ownership of assets to the private sector.

In this model, the public sector purchases infrastructure services from the private sector through a long-term agreement. PFI projects, therefore, bear direct financial obligations to the government in any event. In addition, explicit and implicit contingent liabilities may also arise due to loan guarantees provided to the lenders and default of a public or private entity on non-guaranteed loans.

A PFI project can be structured on minimum payment by the government over a fixed contract tenure, or minimum contract tenure for a fixed annual payment, or a combination of both payment and tenure.

In the PFI model, asset ownership at the end of the contract period is generally transferred to the public sector. Setting up of a Special Purpose Vehicle (SPV) may not be always necessary (see discussion on SPV in the following section). A PFI contract may be awarded to an existing company. For the purpose of financing, the lenders may, however, require the establishment of an SPV. The PFI model also has many variants.

In a PFI project, as the same entity builds and operates the services, and is paid for the successful supply of services at a pre-defined standard, the SPV / private company has no incentive to reduce the quality or quantity of services. This form of contractual agreement reduces the risks of cost overruns during the design and construction phases or of choosing an inefficient technology, since the operator's future earnings depend on controlling the costs. The public sector's main advantages lie in the relief from bearing the costs of design and construction, the transfer of certain risks to the private sector and the promise of better project design, construction and operation.

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The main pros and cons of this model are summarized below:

Pros:

- Private sector may bear a significant share of the risks.
- High level of private investment.
- Potential for efficiency gains and innovation is high.
- Attractive to private investors in an untested or developing PPP market.
- Most suitable for social sector infrastructure projects (schools, dormitories, hospitals, community facilities, etc.).

Cons:

- Complex to implement and manage the contractual regimes.
- Government has direct financial liability.
- Negotiation between parties may require long time.
- Regulatory efficiency is very important.
- Contingent liabilities on the government in the medium and long term.

CAPITAL BUDGETING :-

INTRODUCTION TO CAPITAL

Capital refers amount needed to starts the business. The initial amount invested in the business is called as capital to start business we need fixed capital. Without fixed capital one cannot start any business for any type of business fixed capital is required. The fixed capital can be used to purchase fixed assets of the business like. Land, building, machinery and furniture etc. To run any type of business activity we need working capital. Working capital refers to the amount needed to run day-to-day expenses of the business.

"Capital does not include money only but it includes money worth also".

NEED / SIGNIFICANCE OF CAPITAL

The long term investment decision is also popularly termed as capital budgeting decision. It refers to the investment in project whose results would be available only in the long run i.e. after one year examples are the deployment of financer to purchase of land building and machinery etc. The investments in their projects are quite heavy and to be made immediately but the returns will be available only after a period of time.

The following are some of the situations where long term investment may be necessary.

- ✓ To promote a business
- ✓ To conduct business operations smoothly.

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- ✓ To establishment of the organization
- ✓ To pay taxes like income tax & sales tax.
- ✓ To pay dividends and interests.
- ✓ Support the workers welfare programmers
- ✓ At the time of winding up the company may need funds to meet the liquidation expanses.

➢ **EXPANSION:** A firm may have to expand its productivity capacity on account of high demand for its products and inadequate production capacity .This will need on additional capital investment.

➢ **DIVERSIFICATION:** A firm may be interested in diversifying its production to reduce risk by operating in several markets rather than in a single market in such an event long term investment may became necessary for purchase of new machinery and facilities to handle new products.

➢ **RESEARCH AND DEVALOPMENT:** Huge amount may have to be expended for research and development in case of those industries where technology is rapidly changing.

➢ **REPLACEMENT & MODERNISATION:** Replacement of fixed assets may become necessary on account of their being worn out or became out dated on account of new technology.

➢ **MISCELLANEOUS:** - A firm may have to invest money in project which do not directly help in achieving profit oriented goals for example ; installation of pollution control equipment may be necessary on account of legal requirement

TYPES OF CAPITAL:

Capital can be classified into two types:-

a) Fixed capital (or) Block capital

b) Working capital

FIXED CAPITAL:

To start business we need fixed capital. Without fixed capital one cannot start any business for any type of business fixed capital is required. The fixed capital can be used to purchase fixed assets of the business like. Land .building, machinery and furniture etc

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Sources of Fixed Capital:-

1. Issue of shares

2. Issues of debauchers

3. Public deposits

4. Lone from financial institutions such as IFC, SFC

WORKING CAPITAL:

To run any type of business activity we need working capital. Working capital refers to the amount needed to run day to- day expenses of the business. Working capital is usually invested in

- ✓ Raw materials
- ✓ Stock of semi finished goods
- ✓ Salaries, rent, advertisement
- ✓ Plant maintenance, tool & Consumables

Since working capital is continuously circulating hence it is also known as circulating capital.

FACTORS DETERMINING WORKING CAPITAL

1. Nature of business:

The working capital requirement depends on nature of business. In case of public utilities like electricity, water and railways they need working capital. Since they do not maintain big inventory. But in case of trading and financial firms more amount of working capital is needed.

2. Size of business:

Generally large size requires more amount of working capital where as for small scale business normally working capital requirement will be less.

3. Working Capital cycle or operating cycle:

This working capital cycle refers to the time taken to convert raw materials into cash. The more the time taken, the more the working capital, less the time, working capital will be less.

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4. Abnormal factors:

Abnormal factors like strikes and lockouts also require additional working capital. Recessionary conditions require higher amount of stock of finished goods remaining in stock. Similarly, inflationary conditions necessitate more funds for working capital to maintain the same amount of current assets.

5.Market conditions:

Working capital requirements are also affected by market conditions like degree of competition. Large inventory is essential as delivery has to be off the shelf of credit has to be extended on liberal terms when markets competition is fierce or maker is not very strong or is a buyer's market.

6. Level of tax:

The amount of taxes paid depends on taxation laws. These amounts usually have to be paid in advance. Thus for working capital varies with tax rates and advance tax provisions.

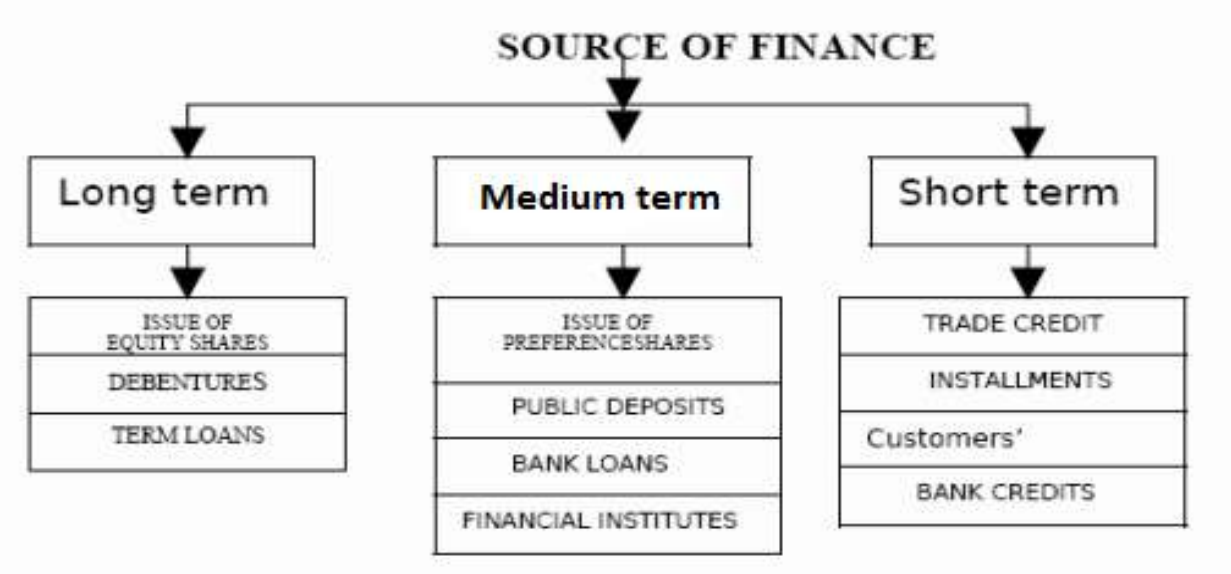
7. Dividend policy:

Payment of dividend utilizes cash while retaining profits acts as a source of working capital. Thus working capital gets affected by dividend policies.

8. Business cycle:

Business fluctuations lead to cyclical and seasonal changes in production and sales affect the working capital requirements.

SOURCE OF FINANCE



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LONG TERM FINANCIAL SOURCES:

- **Issues of equity shares:** Equity capital also called as common stock, is a principal source of long term finance for a firm .these are the ownership capital and the equity holders are thus the real owner of the business who bear the ultimate risk of ownership.

- **Issues of preference shares:** Preference capital is one of the important sources of medium term finance of a company it is hybrid kind of security, possessing some characteristics of equity and some of debt. Legally, it is a part of company's equity base preference dividends are not tax-deductible expenses to the business, and unless the company's charter or the contract with the preferred stock holders runs to the contrary, owners of preferred stock have almost the same rights as equity stock holders have

- **Issues of debentures:** Debenture is one of the frequently used methods of raising long- term funds by a firm. It is a written instrument signed by the company under its common seal acknowledging the debt due by it to its holders. It carries a fixed rate of interest and the interest is payable irrespective of whether the company earns profits or not .The interest paid on debenture is chargeable against profit and hence is a tax deductible.

Capital collected through issue of debenture can be secured, unsecured, convertible, non-convertible, redeemable and irredeemable.

- **Term Loans:** Term loan represents yet another source of debt finance which is generally repayable after one year but within ten years. They are utilized to finance the acquisition of fixed assets and working capital margin .term loans differ from short term bank loans in as much as the latter are utilized to finance short-term working capital needs and are liquidated within a year.

- **Issues of preference shares:** Preference capital is one of the important sources of medium term finance of a company it is hybrid kind of security, possessing some characteristics of equity and some of debt. Legally, it is a part of company's equity base-preference dividends are not tax-deductible expenses to the business, and unless the company's charter or the contract with the preferred stock holders runs to the contrary, owners of preferred stock have almost the same rights as equity stock holders

- **Bank loans:** Commercial banks play a very important role in corporate finance .They accepts deposits from the public and lend the money to business. On account of the medium - term nature of bank deposits, banks normally do not lend for a long period of time. They provide various types of advances for short and medium period of term.

- **Assistance from special industrial financial institutions:** Companies have the option of raising money from financial institutions. Financial institutions normally provides long term and medium term finance while there are many financial institutions in the country, some of them have been specifically set up to meet the financial needs of industrial enterprises. They are also known as Development Banks.

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CAPITAL BUDGETING

The long term investment decision is also popularly termed as capital budgeting decision it refers to the investment in project whose results would be available only in the long run i.e. after one year examples are the deployment of financer to purchase of land, building and machinery etc. The investments in their projects are quite heavy and to be made immediately but the returns will be available only after a period of time. Capital budgeting is a continuous process and it is carried out by different functional areas of management such as production, marketing, engineering, financial management etc.

Capital budgeting decision involves three steps:

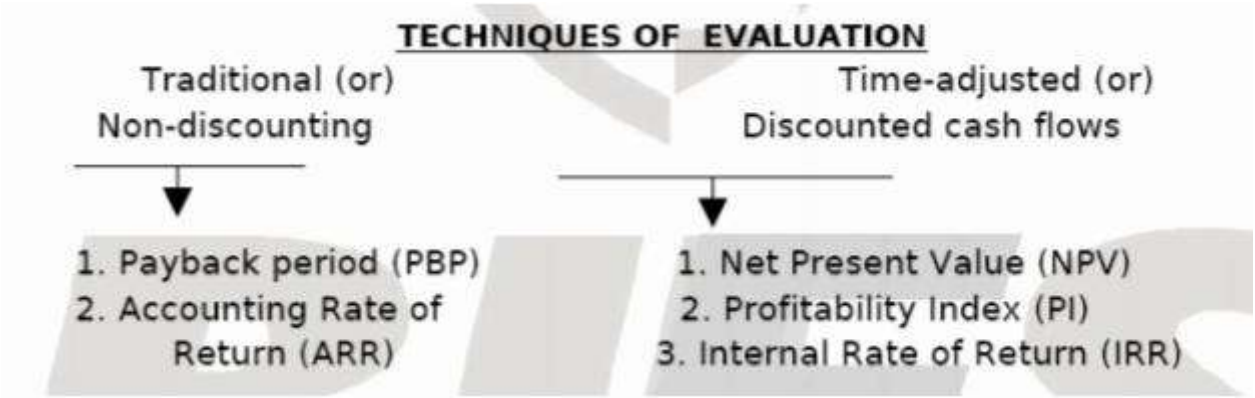
1. Estimation of costs and benefits of a proposal or of each alternative.

2. Estimation of the required rate of return, i.e., the cost of capital

3. Selection and applying the decision criterion

CAPITAL BUDGETING METHODS

Broadly there are two methods by which an investment opportunity or project can be evaluated. These are as follows.



❖ Payback Period {PBP}:-

The basic characteristic of investment is that a current outlay is followed by a stream is future cash inflow for a specified period. Payback period may be defined as number of years required to recoup or recover the initial investment from the generated cash flow. Since different projects have razing patron and firming of cash flows the projects will have different pay back periods.

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$$\text{Payback period (CF equal)} = \frac{\text{Initial Investment}}{\text{Annual cash flow}}$$

$$\text{PBP} = \text{Base year} + \frac{\text{Required CFAT in cumulative}}{\text{Next year CFAT}}$$

(CF Un equal)

❖ AVERAGE/ACCOUNTING RATE OF RETURN {ARR} :-

This method is also known as average rate of return as average of the net profit after taxes over the whole of the economic life of the project are taken under this method returned is expressed as percentage of capital or investment accounting rate of return may be calculated using any one of the following formula.

1) $\text{ARR} = \frac{\text{Average net profit after taxes}}{\text{Total Investment}} \times 100$

2) $\text{ARR} = \frac{\text{Average net profit after taxes}}{\text{Average Investment}} \times 100$

$$\text{Average net profit after taxes} = \frac{\text{Total Net Profit after Taxes}}{\text{No. of Years}}$$

Average Investment = Investment - Scraper/2 + (Add working Capital + Scrap Value)

❖ NET PRESENT VALUE METHOD {NPV}:-

This method is generally considered to be a modern and the best method for evaluating the capital budgeting proposals. "NPV may be defined as the solution of the present values of cash blows in each year minus (-) the summation of present values of the net out flows in each year" In other words the excess of present value of cash inflows over the present value of cash out flows. This method takes into consideration the time value of money and attempts to calculate the return on investments by introducing the factor oftime element.

Formula: $\frac{1}{(1+K)^t}$

Using your calculator

Formula: 1x100 / (100+discounting factor)

Multiply 1 with 100/110 for the first year

Multiply the first year result with 100/110 for the second year so on

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Eg: 1x100/110 =.909

.909x100/110 =.826

Problem 1:

A decision is to be made between two competing projects which require an equal investment of Rs.50,000 and are expected to generate net cash flows as under:

Year	**Project 1**	**Project 2**
1	25,000	10,000
2	15,000	12,000
3	10,000	18,000
4	NIL	25,000
5	12,000	8,000
6	6,000	4,000

The cost of capital of the company is 10%. Which project proposal should be chosen and why ? Evaluate the project proposals under.

a) Payback period and b) Net present value methods

Ans :- a) project 1 : 3years
Project 2 : 3.4years
b) Project 1 : 3,461
Project 2 : 6,819

Problem 2:

Determine Accounting Rate of Return (ARR) from the following information.

Cost of machine = Rs.56,125
Working capital required = Rs.5,000
Estimated life = 5years
Salvage value = 3,000
Income tax = 5%
Method of depreciation = Straight Line Method (SLM)

CFATs : (Cash Flow After Taxes)

Year	1	2	3	4	5
CFATs Rs.	3,375	5,375	7,375	9,375	11,375

Ans :- ARR : 21.34%

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UNIT – V

FINANCIAL ACCOUNTING AND ANALYSIS

Accounting :

Accounting is the system a company uses to measure its financial performance by noting and classifying all the transactions like sales, purchases, assets, and liabilities in a manner that adheres to certain accepted standard formats. It helps to evaluate a Company's past performance, present condition, and future prospects.

Definition:

A more formal definition of accounting is the art of recording, classifying, and summarizing in a significant manner and in terms of money, transactions and events which are, in part at least, of a financial character and interpreting the results thereof.

Classification of Accounting:

In order to satisfy needs of different people interested in the accounting information, different branches of accounting have developed. Accounting is generally classified into three different disciplines as shown in Figure.

Financial Accounting: Accounting involves recording, classifying and summarizing of past events and thus is historical in nature. It is Historical accounting which is better known as financial accounting whose primary intention is to prepare the Statements revealing the Income / Loss and financial position of the business on the basis of events, which have happened in the period being reckoned.

But this information, though of immense vitality does not adequately aid the management in planning, controlling, organizing and efficiently conducting the course of the business as a result of which Cost Accounting and Management Accounting are in place.

Cost Accounting: It shows classification and analysis of costs on the basis of functions, processes, products, centers etc. It also deals with cost computation, cost saving, cost reduction, etc.

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Management Accounting: Management Accounting begins where Financial accounting and Cost Accounting ends. It deals with the processing of data generated in financial accounting and cost accounting for managerial decision-making. It also deals with application of managerial economics concepts for decision-making.

The Accounting Equation:

Now let us discuss the accounting equation, which keeps all the business accounts in balance. We will create this equation in steps to clarify your understanding of this concept. In order to start a business, the owner usually has to put some money down to finance the business operations. Since the owner provides this money, it is called Owner's equity. In addition, this money is an Asset for the company. This can be represented by the equation:

ASSETS = OWNER'S EQUITY

If the owner of the business were to close down this business, he would receive all its assets. Let's say that owner decides to accept a loan from the bank. When the business decides to accept the loan, their Assets would increase by the amount of the loan. In addition, this loan is also a Liability for the company. This can be represented by the equation:

Assets = Liabilities + Owner's Equity

Now the Assets of the company consist of the money invested by the owner, (i.e. Owner's Equity), and the loan taken from the bank, (i.e. a Liability). The company's liabilities are placed before the owners' equity because creditors have first claim on assets.
If the business were to close down, after the liabilities are paid off, anything left over (assets) would belong to the owner

The Accounting Cycle:

The following stages are in accounting cycle:

1) All the business transactions are systematically entered in journal by way of journal entries

2) From the journal, they are recorded in various accounts in the book called ledger

3) With the help of the balances in various accounts, trial balance is prepared to know the arithmetical accuracy

4) Finally, preparing final accounts with the help of the balance. Trading & Profit & Loss Account is prepared to ascertain the profit or loss made during a particular period, balance sheet is prepared to know the exact financial position

Systems of Book-Keeping:

Two types of systems of book-keeping are:

1. Single entry system: It is used to record only cash and personal accounts.

2. Double entry system: It is used to record each transaction under two different accounts.

It is more reliable and efficient than the single entry system.

Difference between Double Entry and Single Entry Systems

Features	Double Entry System	Single Entry System
Recording of transactions	Dual aspect is followed for all transactions	Dual aspects is not followed for all transactions
Maintenance of books	Subsidiary books such as cash, Sales, purchase are maintained	Only cash book is maintained
Maintenance of books of accounts	All real, personal, nominal accounts are maintained	Only personal account is maintained
Preparation of trail balance final statements	Trail balance & Final statements can be accurately maintained	Trail balance cannot be prepared & Final statements does not provide accurate results

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DOUBLE ACCOUNTING SYSTEM :

Double entry system of Book-keeping is simple and universal in its application. It has the test of four hundred years continuous use. It may be claimed that it is the only system worthy of adoption by the practical businessman. To understand the system of double entry system of book- keeping all that we need to remember is the fundamental rule:

"Debit – the account which receives the benefit."

"Credit – the account which gives the benefit"

Types of account:-

1) Personal Account

2) Real Account

3) Nominal Account

RULES FOR DEBIT & CREDIT.

1) Personal Account: - This account deals with the individuals of the organization these includes accounts of natural persons in varied capacities likes suppliers and buyers of goods, lenders and borrowers of loans etc.

"Debit – the receiver"

"Credit – the giver"

2) Real Account: - This account deals with the group of individuals of the Organization these include combinations of the properties or assets are known as real account.

"Debit – what comes in"

"Credit – what goes out"

3) Nominal Account: - Nominal accounts relate to such items which exist in name only. These items pertain to expenses and gains like interest, rent, commission, discount, salary etc,

"Debit – all expenses and losses"

"Credit – all incomes and gains"

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Journal Entries :

A journal entry is an entry into an accounting journal. An accounting journal records accounting transactions as they occur. A journal entry converts accounting transactions into the language of accounting by using debits and credits.

Requirements for journal entries

All journal entries should satisfy the following requirements:

(1) At least one entry on the debit side

(2) At least one entry on the credit side

(3) Sum of debit side amounts = sum of credit side amounts

Journals (Preparation of Journal Entries)

The word 'Journal' is derived from the French word "jour" meaning 'a day'. Journal, therefore, means a 'daily record'. Transactions are first entered in a book called 'Journal' to show which accounts should be debited and which credited along with an explanation of the entry (called 'narration'). Journal entry is any transaction that is recorded in the journal. The process of recording the transactions in the journal is termed as journalizing the entries.

All transactions are first recorded in the journal as they occur in a chronological order. This is the first step in the accounting process. The journal is called 'Book of original entry' as all transactions that occur are first recorded here.

The form of the journal is given below:

JOURNAL

Date	Particulars	L.F	Debit Amount	Credit Amount

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Example:

Let us consider the following transactions and prepare journal entries in the format shown above.

i. Purchased goods on credit from Mr. X for Rs.2,00,000 on 4 Jan 2009

ii. Sold goods to Mr. Y for cash Rs.1,00,000 on 12 Jan 2009

iii. Purchased furniture for office purpose Rs.20,000 on 25 Jan 2009

iv. Paid Rs.1,00,000 to Mr. X in full settlement of his dues on 30 Jan 2009

Ans:-

Date	**Particulars**	**L.F No**	**Debit Amount**	**Credit Amount**
4 Jan 2009	Purchases Account Dr. To Mr. X Account (Being purchase of goods on credit from Mr. X)		2,00,000	 2,00,000
12 Jan 2009	Cash Account Dr. To Sales Account (Being sale of goods to Mr. Y for cash)		1,00,000	 1,00,000
25 Jan 2009	Furniture Account Dr. To Cash Account (Being furniture purchased for cash)		20,000	 20,000
30 Jan 2009	Mr. X Account Dr. To Cash Account (Being paid Mr. X in full settlement of his dues)		1,00,000	 1,00,000

Illustration: I

Journalize the following transactions and prepare a cash ledger.

1. Ram invests Rs. 10, 000 in cash.

2. He bought goods worth Rs. 2000 from Siva.

3. He bought a machine for Rs. 5000 from Lakshman on account.

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4. He paid to Lakshman Rs. 2000

5. He sold goods for cash Rs.3000

6. He sold goods to A on account Rs. 4000

7. He paid to Siva Rs. 1000

8. He received amount from A Rs. 2000

Illustration II

Journalize the following transactions and post them into Ledgers

Jan 1. Commenced business with a capital of Rs. 10000

,, 2. Bought Furniture for cash Rs. 3000

,, 3. Bought goods for cash from 'B' Rs. 500

,, 4. Sold goods for cash to A Rs. 1000

,, 5. Purchased goods from C on credit Rs.2000

,, 6. Goods sold to D on credit Rs. 1500

,, 8. Bought machinery for Rs. 3000 paying Cash

,, 12. Paid trade expenses Rs. 50

,, 18. Paid for Advertising to Apple Advertising Ltd. Rs. 1000

,, 19. Cash deposited into bank Rs. 500

,, 20. Received interest Rs. 500

,, 24. Paid insurance premium Rs. 200

,, 30. Paid rent Rs. 500

,, 30. Paid salary to P Rs.1000

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LEDGER

Ledger is the secondary book of accounts all business transactions are recorded in the first instance in the journal, but they must find their place ultimately in the accounts in the ledger in a duly classified form. This ledger are also called final entry book. OR Transferring of all journals in to accounts by using accounting principles is called ledger.

Format of ledger

FORMAT OF LEDGER ACCOUNT

Dr. Cr.

Date	Particulars	J.F.	Amount (₹)	Date	Particulars	J.F.	Amount (₹)

Example :

Record the following transactions in a Journal and then post the entries into the ledger.

1. 15th June: Ibrahim a sole proprietor Commenced business with a capital of Rs. 2,00,000.
2. 17th June: Bought Furniture for cash Rs. 20,000.
3. 17th June: Paid Rent to the shop owner Mr. Murugan Rs. 5,000.
4. 18th June: Paid cash into bank Rs. 1,50,000
5. 18th June: Bought Goods for cash Rs. 10,000 from M/s Shamir Jain & Co.,
6. 18th June: Bought Goods on credit from M/s Ramdas & Bros. for Rs. 10,000.
7. 19th June: Sold goods for cash Rs. 12,000 to Mr. Naryan Tiwari
8. 20th June: Bought Machinery from M/s Boolani Machinery and paid by cheque Rs. 25,000.
9. 21st June: Sold goods on credit to Mr. Natekar for Rs. 8,000
10. 21st June: Paid weekly wages to workers Rs. 5,000
11. 24th June: Paid M/s Ramdas and Brothers by cheque Rs. 5,000
12. 24th June: Received from Mr. Natekar Rs. 2,000
13. 24th June: Received commission from M/s Orion Traders for giving a trade lead Rs. 500.

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Journal in the books of M/s __ for the period from _____ to _____

Date	V/R No.	Particulars		L/F	Debit Amount (in Rs)	Credit Amount (in Rs)
June 15th	–	Cash a/c To Capital a/c [Being the amount received from Mr. Ibrahim, the proprietor as his capital contribution]	Dr	– –	2,00,000	2,00,000
17th	–	Furniture a/c To Cash a/c [Being the amount paid towards Furniture purchased]	Dr	– –	20,000	20,000
17th	–	Rent Paid a/c To Cash a/c [For the amount paid towards rent for the shop for the month of May]	Dr	– –	5,000	5,000
18th	–	Bank a/c To Cash a/c [For the amount of cash paid into bank]	Dr	– –	1,50,000	1,50,000
18th	–	Goods/Stock a/c To Cash a/c [Being the value of stock purchased for cash]	Dr	– –	10,000	10,000
18th	–	Goods/Stock a/c To M/s Ramdas & Bros a/c [Being the value of stock purchased from M/s Ramdas & Bros., on credit]	Dr	– –	10,000	10,000
19th	–	Cash a/c To Goods/Stock a/c [Being the value of stock sold for cash]	Dr	– –	12,000	12,000
20th	–	Machinery a/c To Bank a/c [Being the amount paid by cheque towards purchase of machinery]	Dr	– –	25,000	25,000
21th	–	Mr. Natekar a/c To Goods/Stock a/c [Being the value of stock sold on credit to Mr. Natekar]	Dr	– –	8,000	8,000
21th	–	Wages paid a/c To Cash a/c [For the amount paid towards weekly wages for the workers]	Dr	– –	5,000	5,000
24th	–	M/s Ramdas & Bros a/c To Bank a/c [For the amount paid by cheque to M/s Ramdas & Bros., on account]	Dr	– –	5,000	5,000
24th	–	Cash a/c To Mr. Natekar a/c [For the amount received in cash from Mr. Natekar on account]	Dr	– –	2,000	2,000
24th	–	Cash a/c To commission Received a/c [For the amount received in cash from Mr. Natekar on account]	Dr	– –	500	500

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By going through the above journal entries we can identify the list of ledger accounts affected by these transactions.

- Cash a/c
- Capital a/c
- Furniture a/c
- Rent Paid a/c
- Bank a/c
- Goods/Stock a/c
- M/s Ramdas & Bros. a/c
- Machinery a/c
- Mr. Natekar a/c
- Wages Paid a/c
- Commission Received a/c

General Ledger
[Books of Mr. Ibrahim]

Dr — Cash a/c — Cr

Date	Particulars	J/F	Amount (in Rs)	Date	Particulars	J/F	Amount (in Rs)
15/06/05	To Capital a/c	-	2,00,000	17/06/05	By Furniture a/c	-	20,000
19/06/05	To Goods/Stock a/c	-	12,000	17/06/05	By Rent Paid a/c	-	5,000
24/06/05	To Mr. Natekar a/c	-	2,000	18/06/05	By Bank a/c	-	1,50,000
24/06/05	To Commission Received a/c	-	500	18/06/05	By Goods/Stock a/c	-	10,000
	sub-total		2,14,500	21/06/05	By Wages Paid a/c	-	5,000
					sub-total		1,90,000
				25/06/05	By Balance c/d	-	24,500
	Total		2,14,500		Total		2,14,500
25/06/05	To Balance b/d	-	24,500				

Dr — Capital a/c — Cr

Date	Particulars	J/F	Amount (in Rs)	Date	Particulars	J/F	Amount (in Rs)
				15/06/05	By Cash a/c	-	2,00,000
	sub-total		0		sub-total		2,00,000
25/06/05	To Balance c/d	-	2,00,000				
	Total		2,00,000		Total		2,00,000
				25/06/05	By Balance b/d	-	2,00,000

Dr — Furniture a/c — Cr

Date	Particulars	J/F	Amount (in Rs)	Date	Particulars	J/F	Amount (in Rs)
17/06/05	To Cash a/c	-	20,000				
	sub-total		20,000		sub-total		0
				25/06/05	By Balance c/d	-	20,000
	Total		20,000		Total		20,000
25/06/05	To Balance b/d	-	20,000				

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Dr — Rent Paid a/c — Cr

Date	Particulars	J/F	Amount (in Rs)	Date	Particulars	J/F	Amount (in Rs)
17/06/05	To Cash a/c	–	5,000				
				25/06/05	By Balance c/d	–	5,000
	Total		5,000		Total		5,000
01/07/05	To Balance b/d	–	5,000				

Dr — Bank a/c — Cr

Date	Particulars	J/F	Amount (in Rs)	Date	Particulars	J/F	Amount (in Rs)
18/06/05	To Cash a/c	–	1,50,000	20/06/05	By Machinery a/c	–	25,000
				24/06/05	By M/s Ramdas & Bros. a/c	–	5,000
	sub-total		1,50,000		sub-total		30,000
				25/06/05	By Balance c/d	–	1,20,000
	Total		1,50,000		Total		1,50,000
25/06/05	To Balance b/d	–	1,20,000				

Dr — Goods/Stock a/c — Cr

Date	Particulars	J/F	Amount (in Rs)	Date	Particulars	J/F	Amount (in Rs)
18/06/05	To Cash a/c	–	10,000	19/06/05	By Cash a/c	–	12,000
18/06/05	By M/s Ramdas & Bros. a/c	–	10,000	21/06/05	By Mr. Natekar a/c	–	8,000
	sub-total		20,000		sub-total		20,000
	Total		20,000		Total		20,000

Dr — M/s Ramdas & Bros. a/c — Cr

Date	Particulars	J/F	Amount (in Rs)	Date	Particulars	J/F	Amount (in Rs)
24/06/05	To Bank a/c	–	5,000	18/06/05	By Goods/Stock a/c	–	10,000
	sub-total		5,000		sub-total		10,000
25/06/05	To Balance c/d	–	5,000				
	Total		10,000		Total		10,000
				25/06/05	By Balance b/d	–	5,000

Dr — Mr. Natekar a/c — Cr

Date	Particulars	J/F	Amount (in Rs)	Date	Particulars	J/F	Amount (in Rs)
21/06/05	To Goods/Stock a/c	–	8,000	24/06/05	By Cash a/c	–	2,000
	sub-total		8,000		sub-total		2,000
				25/06/05	By Balance c/d	–	6,000
	Total		8,000		Total		8,000
25/06/05	To Balance b/d	–	6,000				

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Dr — Machinery a/c, — Cr

Date	Particulars	J/F	Amount (in Rs)	Date	Particulars	J/F	Amount (in Rs)
20/06/05	To Bank a/c	-	25,000				
	sub-total		25,000		sub-total		0
				25/06/05	By Balance c/d	-	25,000
	Total		25,000		Total		25,000
25/06/05	To Balance b/d	-	25,000				

Dr — Mr. Natekar a/c — Cr

Date	Particulars	J/F	Amount (in Rs)	Date	Particulars	J/F	Amount (in Rs)
21/06/05	To Goods/Stock a/c	-	8,000	24/06/05	By Cash a/c	-	2,000
	sub-total		8,000		sub-total		2,000
				25/06/05	By Balance c/d	-	6,000
	Total		8,000		Total		8,000
25/06/05	To Balance b/d	-	6,000				

Dr — Wages Paid a/c — Cr

Date	Particulars	J/F	Amount (in Rs)	Date	Particulars	J/F	Amount (in Rs)
21/06/05	To Cash a/c	-	5,000				
	sub-total		5,000		sub-total		0
				25/06/05	By Balance c/d	-	5,000
	Total		5,000		Total		5,000
25/06/05	To Balance b/d	-	5,000				

Dr — Commission Received a/c — Cr

Date	Particulars	J/F	Amount (in Rs)	Date	Particulars	J/F	Amount (in Rs)
				24/06/05	By Cash a/c	-	500
	sub-total		0		sub-total		500
25/06/05	To Balance c/d	-	500				
	Total		500		Total		500
				25/06/05	By Balance b/d	-	500

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INTRODUCTION TO FINAL ACCOUNT

INTRODUCTION

All business transactions are first recorded in Journal or Subsidiary Books. They are transferred to Ledger and balanced it. The main object of keeping the books of accounts is to ascertain the profit or loss of business and to assess the financial position of the business at the end of the year. The object is better served if the businessman first satisfies himself that the accounts written up during the year are correct or at least arithmetically accurate.

When the transactions are recorded under double entry system, there is a credit for every debit, when on a/c is debited; another a/c is credited with equal amount. If a Statement is prepared with debit balances on one side and credit balances on the other side, the totals of the two sides will be equal. Such a Statement is called Trial Balance.

Trail Balance

DEFINITION

Trial Balance can be defined as "a list of all balances standing in the Ledger Accounts and Cash Book of a concern at any given time".

Advantages:

1. It is the shortest method of verifying the arithmetical accuracy of entries made in the Ledger. If the Trial balances agree, it is an indication that the Accounts are correctly written up; but it is not a conclusive proof.

2. It helps to prepare the Trading A/c, Profit & Loss a/c and Balance Sheet.

3. It presents to the businessman consolidated lists of all Ledger Balances.

Preparation:

There are two methods for preparing the Trial Balance

First Method:

In this method, Ledger Accounts are not balanced. They are totaled. The debit side totals and the credit side totals are entered in a separate sheet. The grand total of Debit Column will be equal to the grand total of the Credit Column.

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Second Method:

This method is more widely used. In this method, ledger accounts are balanced. The brought down balances are then brought to a sheet as given bellow.

Format of the Trail balance

Particulars	Debit Amount	Particulars	Credit Amount
Opening stock	xxx	Sales	xxx
Purchases	xxx	Commission received	xxx
Carriage inwards	xxx	Bad debts reserve	xxx
Wages	xxx	Interest received	xxx
All factory expenses	xxx	Commission received	xxx
Manufacturing expenses	xxx	Interest on drawing	xxx
Factory rent	xxx	Discount on creditors	xxx
Insurance	xxx	Capital	xxx
Oil, water, gas	xxx	Bank loan	xxx
Fuel, coal, power	xxx	Bank over draft	xxx
Exercise duty	xxx	Income received in advances	xxx
Trade expenses	xxx	Creditors	xxx
Salaries	xxx	Bills payable	xxx
Rent & Taxes	xxx	All other loans	xxx
Advertising expenses	xxx	Closing stock	xxx
Bad debts	xxx		
Insurance	xxx		
Repairs	xxx		
Discount allowed	xxx		
Commission paid	xxx		
Printing & Stationary	xxx		
Cash at bank	xxx		
Cash in hand	xxx		
All manufacturing expenses	xxx		
All depreciations	xxx		
All fixed assets	xxx		
All current assets	xxx		
Selling expenses	xxx		
General expenses	xxx		
Total	xxxxxx	Total	xxxxxx

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Illustration:

The balances extracted from the books of Sankar are given below. From the prepare Trial Balance on 31st March 3007.

Sankar's Capital 30,000, Sundry Creditors 4,000, Sales 30,000, Cash in hand 1,800, Purchases 20,000, Cash in Bank 6,000, Interest (Dr) 400, Bills Receivables 11,000, Sales returns 1,000, Bills Payable 7,000, Purchases Returns 800, Discount earned 800, Sundry Debtors 15,000, Wages 7,000, Commission (Dr) 1,000, Rent 800, Plant and Machinery 8,000, Telephone charges 1,000, Misc. Income 400

Trial Balance of Mr. Sankar
As on 31st March 2007

S.No.	Name of Account	L.F.	Debit Balance Rs.	P.	Credit Balance Rs.	P.
1.	Sankars' capital A.c				30,000	
2.	Sales A/c				30,000	
3.	Purchases A/c		20,000			
4.	Interest A/c		400			
5.	Sales Returns A/c		1,000			
6	Purchaes Returns A/c				800	
7.	Sundry Debtors A/C		15,000			
8.	Sundry Creditors				4000	
9.	Cash in hand		1,800			
10.	Cash at Bank		6,000			
11.	Bills Receivable A.c		11,000			
12.	Bills Payable A/c				7,000	
13.	Commission A/c		1,000			
14.	Discount Earned A/c				800	
15.	Wages A.c		7,000			
16.	Rent A/C		800			
17.	Plant and Machinery A/c		8,000			
18.	Telephone charges A/c		1,000			
19.	Miscellaneous income A/c				400	
	Total		73,000		73,000	

Final Accounts

Final accounts are done in three steps

1. Trading A/c

2.Profit and Loss A/c

3.Balance sheet

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1. Trading and Profit and Loss A/c is prepared to find out Profit or Loss.

2. Balance Sheet is prepared to find out financial position of Company.

Trading and P&L A/c and Balance sheet are prepared at the end of the year or at end of the part. So it is called Final Account.

Revenue account of trading concern is divided into two-part i.e.

1. Trading Account and

2. Profit and Loss Account

TRADING ACCOUNT

Trading Account fro the year ending _____

Dr. Cr.

Particulars	Amount Rs P.	Amount Rs. P.	Particulars	Amount Rs P.	Amount Rs. P.
To Opeining Stock		xxx	By Sales	xxx	
			Less: Returns Inwards	xxx	xxx
To Purchase	xxx				
Less: Returns Outwards	xxx	xxx	By Closing Stock		xxx
		xxx	By Gross Loss (to be transferred to P&L A/c)		xxx
To Wages		xxx			
To Freight					
To Carriage Inwards		xxx			
To Clearing Charges		xxx			
To Packing charges		xxx			
To Dock dues		xxx			
To Power		xxx			
To Gross Proft (to be transferred to P&L A/c)		xxx			
		xxx			xxx

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PROFIT AND LOSS ACCOUNT

PROFIT AND LOSS ACCOUNT (Horizontal Form)

for the year ended.....

Dr			Cr.
Particulars	**₹**	**Particulars**	**₹**
To Gross Loss b/d*	×××	By Gross Profit b/d*	×××
Office and Administrative Expenses:		**Other Income :**	
To Salaries (Administrative)	×××	By Commission Earned	×××
To Office Rent, Rates & Taxes	×××	By Discount Received	×××
To Lighting	×××	**Non Trading Income :**	
To Legal Charges	×××	By Interest Received	×××
To Postage	×××	By Dividend Received	×××
To Printing	×××	**Abnormal Gains :**	
To Insurance	×××	By Gain on	
To Audit Fees etc.	×××	Sale of Fixed Assets	×××
Selling and Distribution Expenses :		By Insurance Claims	×××
To Carriage Outward	×××	By Net Loss †	×××
To Advertisement Expenses	×××	(Transferred to capital account)	
To Godown Rent	×××		
To Commission	×××		
To Brokerage	×××		
To Bad Debts	×××		
To Provision for bad debts etc.	×××		
Financial Expenses :			
To Interest on loans	×××		
To Bank Charges	×××		
To Legal Charges for arranging loans	×××		
To Discounts and Rebate on Bills etc.	×××		
Maintenance Expenses :			
To Repairs & Renewals	×××		
To Depreciation	×××		
Abnormal Losses :			
To Loss on Sale of Fixed Assets	×××		
To Loss by Fire etc	×××		
To Net Profit †	×××		
(Transferred to capital account)	×××		×××

*; † Only one figure will appear in the account

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BALANCE SHEET

Balance Sheet of _____
As on _____

Liabilities	Amount	Amount	Assets	Amount	Amount
Sundry Creditors		xxx	Cash in hand		xxx
Bills Payable		xxx	Cash at bank		xxx
Bank overdraft		xxx	Bills receivable		xxx
Loans		xxx	Sundry Debtors		xxx
Mortgage		xxx	Closing Stock		xxx
Reserve Fund		xxx	Furniture & Fittings		xxx
Outstanding exp.			Investments		xxx
Capital	xxx		Plant & Machinery		xxx
Add: Net Profit			Loose tools		xxx
(or)			Land & Buildings		xxx
Less : Net Loss	xxx		Business premises		xxx
	xxx		Horses & carts		xxx
Less Drawings	xxx		Prepaid exp.		xxx
	xxx		Patents & Trade marks		xxx
			Good will		xxx
Less: Income tax	xxx	xxx			
		xxx			xxx

Illustration :-

From the following trial balance extracted from the books of Venkatachalam as on 31.12.07. Prepare (i) Trading and Profit & Loss A/c and (ii) Balance Sheet, Trial balance as on 31/12/2007

Debit Balances	Rs.	Credit Balances	Rs.
Cash in hand	2,000	Capital	2,00,000
Machinery	60,000	Sales	2,54,800
Stock	50,000	Sundry Creditors	40,000
Bills receivable	1,600	Bank overdraft	22,000
Sundry debtors	50,000	Return outwards	3,000
Wages	70,000	Discount received	1,800
Land	40,000	Bills payable	1,800
Carriage inwards	2,400		
Purchases	1,80,000		
Salaries	24,000		
Rent	4,000		
Postage	1,000		
Return inwards	3,200		
Drawings	10,000		
Furniture	18,000		
Interest	600		
Cash at bank	6,600		
	5,23,400		5,23,400

Stock as on 31.12.07 to Rs. 1,00,000

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Solution :-

Trading, Profit & Loss A/c of Thiru Venkatachalam
For the year ending 31.12.07

Dr. Particulars	Amount	Particulars	Cr. Amount
To Stock (1.1.07)	50,000	By Sales 2,54,800	
To Purchases 1,80,000		Less Returns 3,200	2,51,600
Less Returns 3,000	1,77,000		
To Wages	70,000	By Closing Stock	1,00,000
To Carriage inwards	2,400		
To Gross Profit C/d (transferred to P&L A/c)	52,200		
	3,51,600		**3,51,600**
To Salaries	24,000	By Gross Profit b/d (transferred from trading A/c)	52,200
To Rent	4,000		
To Postage	1,000	By Discount received	1,800
To Interest	600		
To Net Profit (Capital A/c)	24,400		
	54,000		**54,000**

Balance Sheet of Thiru. Venkatachalam as at 31.12.07

Liabilities		Amount	Assets	Amount
Sundry Creditors		40,000	Cash in hand	2,000
Bank overdraft		22,000	Cash at bank	6,600
Bills payable		1,800	Machinery	60,000
Capital	2,00,000		Bills receivable	1,600
Add: Net profit	24,400		Sundry debtors	50,000
	---		Land	40,000
	2,24,400		Furniture	18,000
Less: Drawings	10,000	2,14,400	Closing Stock	1,00,000
		2,78,200		**2,78,200**

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Illustration 2:-

From the following trial balance of Shri Samir , Prepare Trading a/c, Profit & loss a/c and Balance sheet as on that date after taking into consideration the necessary adjustments.

Particulars	Debit (Rs)	Credit (Rs)
Stock	45000	
Plant & Machinery	75000	
Purchases	225000	
Trade charges	10000	
Carriage inwards	2500	
Carriage outwards	1500	
Fctory rent	1500	
Discount	350	
Insurance	700	
Sundry debtors	60000	
Office rent	3000	
Printing & stationary	600	
Travelers salaries	2800	
Advertising	15000	
Bills receivable	6000	
Drawings	6000	
Salaries	15000	
Wages	20000	
Furniture	7500	
Coal and gas	1000	
Capital		75000
Creditors		15000
Sales		420750
Bad debts provision		200
Bills payable		2000
Cash in hand	2000	
Cash at bank	12500	
Total	512950	512950

Additional Information

I. Closing stock amounted to Rs. 35000

II. Depreciate machinery by 10% & Furniture by 5%

III. Raise the bad debts provision to 5% on debtors

IV. Outstanding factory rent Rs. 300 & Office rent Rs.600

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V. Insurance prepaid Rs.100

Solution:-

Dr Trading account, Profit and Loss of Shamir **cr**

Particulars	Amount	Amount	Particulars	Amount	Amount
To stock		45000	By sales		420750
To purchases		225000	By closing stock		35000
To carriage inwards		2500			
To factory rent	1500				
(+) Outstanding	300	1800			
To wages		20000			
To gross profit		161450			
		455750			455750
By trade expenses		10000	By Gross Profit		161450
By carriage outwards		1500	By provision on bad debts		200
By discount		350			
By insurance		700			
By office rent	3000				
(+) outstanding	600	3600			
By printing & Stationary		600			
By travelers salaries		2800			
By advertising		15000			
By drawings		6000			
By salaries		15000			
To coal & Gas		1000			
To depreciation on Plant & Machinery		7500			
To depreciation on Furniture		375			
To prepaid Insurance		100			
To bad-debts provision		3000			
To net profit		94125			
		161650			161650

Balance sheet of Shir Shamir

Liabilities	Amount	Amount	Assets	Amount	Amount
Capital	75000		Plant & Machinery	75000	
(+) Net Profit	94125	169125	(-) Depreciation	7500	67500
Bills payable		2000	Sundry debtors	60000	
Sundry creditors		15000	(-) Provision for Bad debts	3200	56800
Outstanding factory rent		300	Bills receivable		6000
Outstanding office rent		600	Furniture	7500	
			(-) Depreciation	375	7125
			Prepaid Insurance		100
			Cash in hand		2000
			Cash at bank		12500
			Closing stock		35000

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Ratio Analysis

Meaning:-

The ratio is an arithmetical expression i.e. relationship of one number to another. It may be defined as an indicated quotient of the mathematical expression. It is expressed as a proportion or a fraction or in percentage or in terms of number of times. A financial ratio is the relationship between two accounting figures expressed mathematically. Suppose there are two accounting figures of a concern are sales Rs 100000 and profits Rs 15000. The ratio between these two figures will be

$$\frac{15000}{100000} = 3 : 20 \text{ or } 15\%$$

Ratios provide clues to the financial position of a concern. These are the indicators of financial strength, soundness, position or weakness of an enterprise. One can draw conclusions about the financial position of a concern with the help of accounting ratios.

Classification of ratio's :-

1) Financial ratios:-

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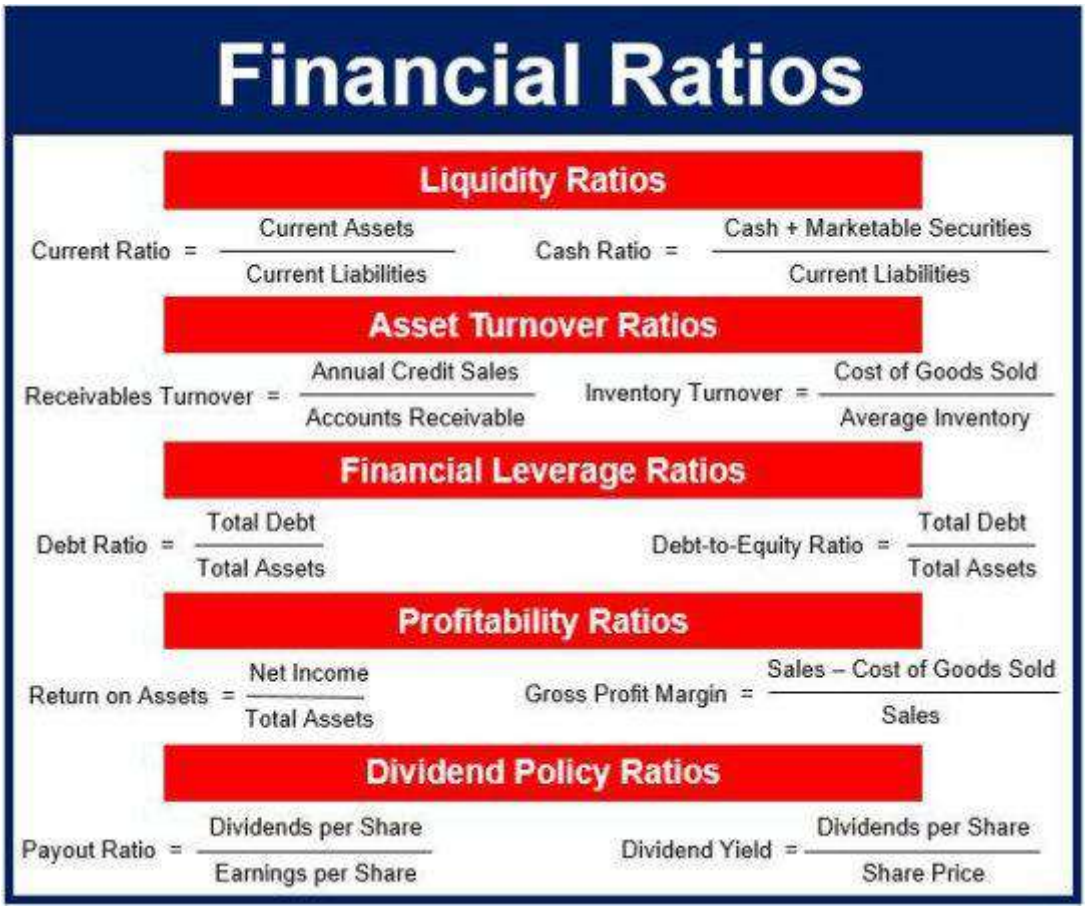

2) Profitability ratios :-

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Profitability Ratios

$$Net\ Profit\ Margin = \frac{Net\ Income}{Revenue}$$

$$Gross\ Profit\ Margin = \frac{Gross\ Profit}{Revenue}$$

$$Operating\ Profit\ Margin = \frac{Operating\ Income}{Revenue}\ OR\ \frac{EBIT}{Revenue}$$

$$Pretax\ Margin = \frac{EBT}{Revenue}$$

$$Return\ on\ Asset\ (ROA) = \frac{Net\ Income}{Average\ Total\ Assets}$$

$$Return\ on\ Asset\ (ROA) = \frac{Net\ Income + Interest\ expense(1 - tax\ rate)}{Average\ Total\ Assets}$$

$$Operating\ Return\ on\ Assets = \frac{Operating\ Income}{Average\ Total\ Assets}\ OR\ \frac{EBIT}{Average\ total\ Assets}$$

$$Return\ on\ Total\ Capital = \frac{EBIT}{Average\ Total\ Capital}$$

$$Return\ on\ Equity = \frac{Net\ Income}{Average\ Total\ Equity}$$

$$Return\ on\ Equity = \frac{Net\ Income - Preferred\ Devidend}{Average\ Common\ Equity} = \frac{Net\ Income\ available\ to\ Common}{Average\ Common\ Equity}$$

Free Cash Flow to Firm:

$$FCFF = Net\ Income + Noncash\ charge + [Interest\ expense \times (1 - Tax\ rate)] - Fixed\ Capital\ Investment - Working\ Capital\ Investment$$

$$FCFF = Cash\ Flow\ from\ Operations + [Interest\ expense \times (1 - Tax\ rate)] - Fixed\ Capital\ Investment$$

Notes :-

1) **Calculation of Gross profit :-**

Gross profit = Sales- Cost of goods sold

Cost of goods sold (COGS) = opening stock +purchases+ all direct expenses –closing stock

2)Operating profit = Gross profit-operating expenses

Operating expenses= COGS +administration expenses +selling and distribution expenses

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Note: does not include financial charges like interest and provision for tax

3) Capital employed= sum total of all the long term funds employed in the business

C E= Equity share capital+ preference share capital+ reserves+ profit and loss account+ long term loans-fictitious assets

Shareholder's funds= Equity share capital +preference share capital +reserves +profit and loss account-fictitious assets

Equity share holder's funds= equity share capital + reserves+ profit and loss account-fictitious assets

3) Turnover ratios :-

Turnover Ratios formulas

S. No.	RATIOS	FORMULAS
1	Inventory Ratio	Net Sales / Inventory
2	Debtors Turnover Ratio	Total Sales / Account Receivables
3	Debt Collection Ratio	Receivables x Months or days in a year / Net Credit Sales for the year
4	Creditors Turnover Ratio	Net Credit Purchases / Average Accounts Payable
5	Average Payment Period	Average Trade Creditors / Net Credit Purchases X 100
6	Working Capital Turnover Ratio	Net Sales / Working Capital
7	Fixed Assets Turnover Ratio	Cost of goods Sold / Total Fixed Assets
8	Capital Turnover Ratio	Cost of Sales / Capital Employed

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Problem 1:

The following is the Balance Sheet of a company as on 31st March:

Liabilities	*Rs.*	*Assets*	*Rs.*
Share Capital	2,00,000	Land and Buildings	1,40,000
Profit & Loss Account	30,000	Plant and Machinery	3,50,000
General Reserve	40,000	Stock	2,00,000
12% Debentures	4,20,000	Sundry Debtors	1,00,000
Sundry Creditors	1,00,000	Bills Receivable	10,000
Bills Payable	50,000	Cash at Bank	40,000
	8,40,000		8,40,000

Calculate :

(1) Current Ratio
(2) Quick Ratio
(3) Inventory to working Capital
(4) Debt to Equity Ratio
(5) Proprietary Ratio
(6) Capital Gearing Ratio
(7) Current Assets to Fixed Assets

SOLUTION :

(1) Current Ratio = $\frac{\text{Current assets}}{\text{Current Liabilities}}$

$= \frac{\text{Rs. } 3,50,000}{\text{Rs. } 1,50,000} = \mathbf{2.33 : 1}$

(2) Quick Ratio = $\frac{\text{Liquid Assets}}{\text{Liquid Liabilities}}$

$= \frac{\text{Rs. } 1,50,000}{\text{Rs. } 1,50,000} = \mathbf{1 : 1}$

(3) Inventory to Working Capital = $\frac{\text{Inventory}}{\text{Working Capital}}$

$= \frac{\text{Rs. } 2,00,000}{\text{Rs. } 2,00,000} = \mathbf{1 : 1}$

(Working Capital = Current Assets – Current Liabilities
= Rs. 3,50,000 – Rs. 1,50,000 = Rs. 2,00,000)

(4) Debt to Equity Ratio = $\frac{\text{Long Term Debts}}{\text{Shareholders' Fund}}$

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$$= \frac{\text{Rs. } 4,20,000}{\text{Rs. } 2,70,000} = \mathbf{1.56 : 1}$$

(Or)

$$= \frac{\text{Long Term Debts}}{\text{Shareholders' Fund + Long Term Debts}}$$

$$= \frac{\text{Rs. } 4,20,000}{\text{Rs. } 2,70,000 + 4,20,000} = \mathbf{0.6 : 1}$$

(5) Proprietary Ratio $= \frac{\text{Shareholders' Fund}}{\text{Total Assets}}$

$$= \frac{\text{Rs. } 2,70,000}{\text{Rs. } 8,40,000} = \mathbf{0.32 : 1}$$

(6) Capital Gearing Ratio $= \frac{\text{Fixed Interest Bearing Securities}}{\text{Equity Share Capital}}$

$$= \frac{\text{Rs. } 4,20,000}{\text{Rs. } 2,00,000} = \mathbf{2.1 : 1}$$

(7) Current Assets to Fixed Assets Ratio $= \frac{\text{Current Assets}}{\text{Fixed Assets}}$

$$= \frac{\text{Rs. } 3,50,000}{\text{Rs. } 4,90,000} = \mathbf{0.71 : 1}$$

Problem 2:

From the following particulars found in the Trading, Profit and Loss Account of A Company Ltd., work out the operation ratio of the business concern:

TRADING ACCOUNT OF A COMPANY LTD.
for the period ending December 31

Dr. *Cr.*

Expenses	*Rs.*	*Incomes*	*Rs.*
To Opening Stock	1,400	By Net Sales	10,000
To Purchases	6,400	By Closing Stock	600
To Direct Expenses	300		
To Gross Profit	2,500		
	10,600		10,600

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PROFIT AND LOSS ACCOUNT OF A COMPANY LTD.
for the period ending December 31

Dr.			*Cr.*
Expenses	*Rs.*	*Incomes*	*Rs.*
To Operating Expenses:		By Gross Profit	2,500
(a) Administrative Expenses	1,600		
(b) Selling and Distribution Expenses	300		
To Financial Expenses	100		
To Net Profit	500		
	2,500		2,500

SOLUTION :

$$\text{Operating Ratio} = \frac{\text{Cost of goods sold and other operating expenses}}{\text{Net sales}} \times 100$$

	Rs.
Cost of Goods Sold :	
Opening Stock	1,400
Purchases	6,400
Direct Expenses	300
	8,100
Less Closing Stock	600
Cost of Goods Sold	7,500
Operating Expenses :	Rs.
(a) Administrative Expenses	1,600
(b) Selling and Distribution Expenses	300
(c) Financial Expenses	100
Operating Expenses	2,000

$$\text{Operating Ratio} = \frac{7,500 + 2,000}{10,000} \times 100 = 95\%$$

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Problem 3:

The following is the summarised Profit and Loss Account of Taj Products Ltd. for the year ended 31st December:

PROFIT AND LOSS ACCOUNT

	Rs.		Rs.
Opening Stock of Materials	99,500	Sales	8,50,000
Purchase of Materials	3,20,000	Stock of Materials (Closing)	89,000
Direct Wages	2,25,250		
Manufacturing Expenses	14,250	Stock of Finished Goods (Closing)	60,000
Selling & Distribution		Non-operating Income Interest	3,000
Expenses	30,000	Profit on Sale of Shares	6,000
Administrative Expenses	1,50,000		
Finance Charges	15,000		
Non-operating Expenses:			
Loss on Sale of Assets	4,000		
Net Profit	1,50,000		
	10,08,000		10,08,000

Work out the following ratios :

(1) Gross Profit Ratio
(2) Net Profit Ratio
(3) Operating Ratio
(4) Cost Ratios (to cost of Production)
  (*i*) Materials Consumed Ratio
  (*ii*) Labour Cost Ratio
  (*iii*) Production Overhead Cost Ratio.

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SOLUTION:

			Rs.
Gross Sales (*a*)			8,50,000
Less : Cost of Goods Sold :	Rs.		
Opening Stock of Materials	99,500		
Add : Materials Purchased	3,20,000		
	4,19,500		
Less : Stock of Materials (Closing)	89,000		
Materials Consumed : (*b*)		3,30,500	
Direct Wages		2,25,250	
Manufacturing Expenses		14,250	
Cost of Production (*c*)		5,70,000	
Less : Closing Stock of Finished Products		60,000	
Cost of Goods Sold (*d*)			5,10,000
Gross Profit (*e*)			3,40,000
Less : Administrative Expenses		1,50,000	
Selling and Distribution		30,000	1,80,000
Net Operating Profit before Interest and Taxation : (*f*)			1,60,000
Add : *Non-operating Incomes* (*g*)			
Interest		3,000	
Profit on Sale of Shares		6,000	9,000
			1,69,000
Less : Loss on Sale of Assets		4,000	
Finance Charges		15,000	19,000
Income before Taxation (*h*)			1,50,000

(1) $$\text{Gross Profit Ratio} = \frac{\text{Gross Profit}}{\text{Net Sales}} \times 100$$

$$= \frac{\text{Rs. } 3,40,000}{\text{Rs. } 8,50,000} \times 100 = 40\%$$

(2) $$\text{Net Profit Ratio} = \frac{\text{Net Profit}}{\text{Net Sales}} \times 100$$

$$= \frac{1,60,000}{\text{Rs. } 8,50,000} \times 100 = 18.82\%$$

(3) $$\text{Operating Ratio} = \frac{\text{Cost of Goods Sold} + \text{Operating Expenses}}{\text{Net Sales}} \times 100$$

$$= \frac{\text{Rs. } 5,10,000 + \text{Rs. } 1,80,000}{\text{Rs. } 8,50,000} \times 100 = 81.18\%$$

(4) (*i*) $$\text{Material Consumed Ratio} = \frac{\text{Material Consumed}}{\text{Cost of Product}} \times 100$$

$$= \frac{\text{Rs. } 3,30,500}{\text{Rs. } 5,70,000} \times 100 = 57.98\%$$

(*iii*) $$\text{Production Overhead Ratio} = \frac{\text{Production Overhead}}{\text{Cost of Production}} \times 100$$

$$= \frac{\text{Rs. } 14,250}{\text{Rs. } 5,70,000} \times 100 = 2.5\%$$

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Problem 4:

From the following Balance Sheet and additional information, you are required to calculate:

(i) Return on Total Resources

(ii) Return on Capital Employed

(iii) Return on Shareholders' Fund

BALANCE SHEET as on 31st Dec.

	Rs.		*Rs.*
Share Capital (Rs. 10)	8,00,000	Fixed Assets	10,00,000
Reserves	2,00,000	Current Assets	3,60,000
8% Debentures	2,00,000		
Creditors	1,60,000		
	13,60,000		13,60,000

Net operating profit before tax is Rs. 2,80,000. Assume tax rate at 50%. Dividend declared amounts to Rs.1,20,000. (*B.Com. MS.*)

SOLUTION:

(*i*) Retrun on Total Resources $= \frac{\text{Profit after Tax}}{\text{Total Assets}} \times 100$

$= \frac{\text{Rs.1,40,000}}{\text{Rs.13,60,000}} \times 100 = 10.29\%$

(*ii*) Return on Capital Employed

$= \frac{\text{Profit before Tax \& Interest}}{\text{Capital Employed}} \times 100$

$= \frac{\text{Rs.2,96,000}}{\text{Rs.12,00,000}} \times 100 = 24.7\%$

(*iii*) Return on Shareholders' Fund

$= \frac{\text{Profit after Tax}}{\text{Shareholders Fund}} \times 100$

$= \frac{\text{Rs.1,40,000}}{\text{Rs.10,00,000}} \times 100 = 14\%$

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