

**MANAGERIAL ECONOMICS**

**AND**

**FINANCIAL ANALYSIS**

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## JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

B. Tech II-II Sem. (EEE)

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### (15A52301) MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS

**Course Objectives:** The objective of this course is to equip the student with the basic inputs of Managerial Economics and Economic Environment of business and to impart analytical skills in helping them take sound financial decisions for achieving higher organizational productivity.

#### Unit I: INTRODUCTION TO MANAGERIAL ECONOMICS

Managerial Economics – Definition- Nature- Scope - Contemporary importance of Managerial Economics - Relationship of Managerial Economics with Financial Accounting and Management. **Demand Analysis:** Concept of Demand-Demand Function - Law of Demand - Elasticity of Demand- Significance - Types of Elasticity - Measurement of elasticity of demand - Demand Forecasting- factors governing demand forecasting- methods of demand forecasting.

#### UNIT II: THEORY OF PRODUCTION AND COST ANALYSIS

**Production Function-** Least cost combination- Short-run and Long- run production function- Isoquants and Isocosts, MRTS - Cobb-Douglas production function - Laws of returns - Internal and External economies of scale - **Cost Analysis:** Cost concepts and cost behavior- Break-Even Analysis (BEA) -Determination of Break Even Point (Simple Problems)-Managerial significance and limitations of Break- Even Point.

#### UNIT III: INTRODUCTION TO MARKETS AND NEW ECONOMIC ENVIRONMENT

**Market structures:** Types of Markets - Perfect and Imperfect Competition - Features of Perfect Competition- Monopoly-Monopolistic Competition-Oligopoly-Price-Output Determination - Pricing Methods and Strategies-Forms of Business Organizations- Sole

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Proprietorship- Partnership – Joint Stock Companies - Public Sector Enterprises – New Economic Environment- Economic Liberalization – Privatization - Globalization.

## **UNIT IV: INTRODUCTION TO FINANCIAL ACCOUNTING AND ANALYSIS**

Financial Accounting – Concept - Emerging need and Importance - Double-Entry Book Keeping- Journal - Ledger – Trial Balance - Financial Statements - Trading Account – Profit & Loss Account – Balance Sheet (with simple adjustments). Financial Analysis – Ratios – Liquidity, Leverage, Profitability, and Activity Ratios (simple problems).

## **UNIT V: CAPITAL AND CAPITAL BUDGETING**

Concept of Capital - Over and Undercapitalization – Remedial Measures - Sources of Short term and Long term Capital - Estimating Working Capital Requirements – Capital Budgeting – Features of Capital Budgeting Proposals – Methods and Evaluation of Capital Budgeting Projects – Pay Back Method – Accounting Rate of Return (ARR) – Net Present Value (NPV) – Internal Rate Return (IRR) Method (simple problems)

**Learning Outcome:** After completion of this course, the student will be able to understand various aspects of Managerial Economics and analysis of financial statements and inputs therein will help them to make sound and effective decisions under different economic environment and market situations.

### **TEXT BOOKS:**

1. Managerial Economics 3/e, Ahuja H.L, S.Chand, 2013.
2. Financial Management, I.M.Pandey, Vikas Publications, 2013.

### **REFERENCES**

1. Managerial Economics and Financial Analysis, 1/e, Aryasri, TMH, 2013.
2. Managerial Economics and Financial Analysis, S.A. Siddiqui and A.S. Siddiqui, New Age International, 2013.
3. Accounting and Financial Management, T.S.Reddy & Y. Hariprasad Reddy, Margham Publishers.

## **UNIT-I**

### **INTRODUCTION TO MANAGERIAL ECONOMICS**

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

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

### **INTRODUCTION TO MANAGERIAL ECONOMICS:**

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

#### **MANAGEMENT**

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

#### **ECONOMICS**

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

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

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

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

# MICRO AND MACRO ECONOMICS

## Micro Economics

- The study of an individual consumer or a firm is called Micro Economics. It is also called the theory of Firm.
- Micro means one millionth. Micro Economics deals with behavior and problems of single individual and of micro organisation.

## Managerial Economics

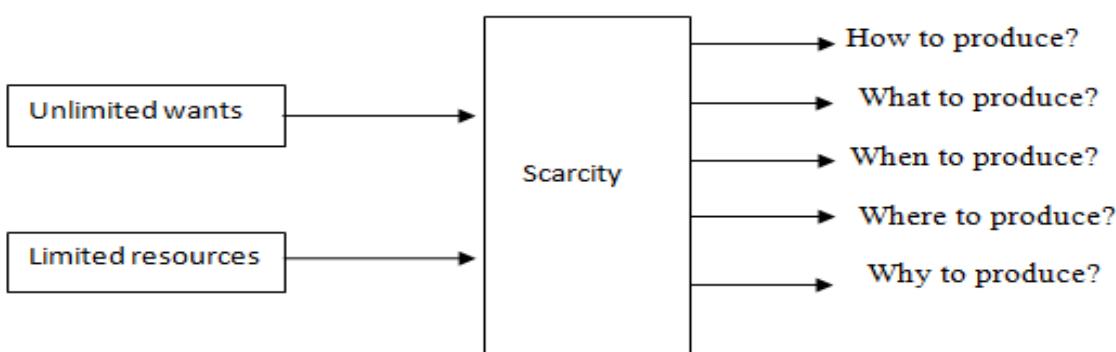
- Managerial Economics has its roots in micro economics and it deals with the micro or individual enterprises.
- It is concerned with the application of concepts such as Price Theory, Law of Demand and Theories of market structure and so on.

## Macro Economics

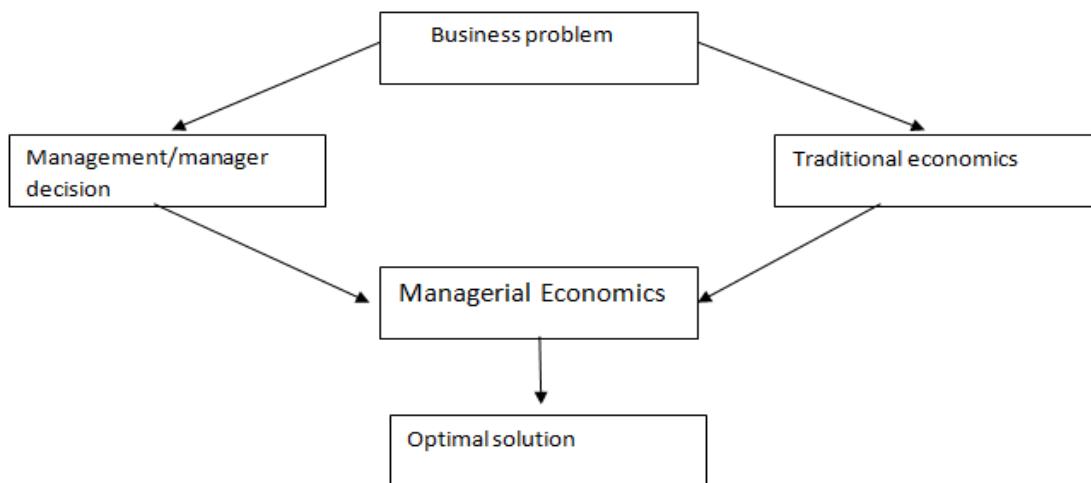
- The study of aggregate or total level of economic activity in a country is called Macro Economics.
- It studies the flow of economic resources or factors of production (such as land, labour, capital, organisation and technology) from the resource owner to the business firms and then from the business firms to the households.
- It deals with the total aggregates. For instance, total national income, total employment, total output and total investment.
- It studies the interrelations among various aggregates and examines their nature and behaviour, their determination and causes of their fluctuations in them.
- It deals with the price level in general, instead of studying the prices of individual commodities.
- It is concerned with the level of employment in the economy.
- It discusses aggregate consumption, aggregate investment, price level and national income.
- The important tools of macro economics include national income analysis, balance of payments and theories of employment and so on.

# INTRODUCTION TO MANAGERIAL ECONOMICS

- Managerial Economics as a subject gained popularity in USA after the publication of book "Managerial Economics" by Joel Dean in 1951.
- Managerial Economics refers to the firm's decision making process.
- It could be also interpreted as "Economics of Management".
- Managerial Economics is also called as "Industrial Economics" or "Business Economics".
- Joel Dean observes managerial economics shows how economic analysis can be used in formulating policies.



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



## **MEANING AND DEFINITION OF MANGERIAL ECONOMICS:**

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

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

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

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

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

-----**Joel Dean**

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

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

## **NATURE OF MANAGERIAL ECONOMICS**

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

The other features of managerial economics are explained as below:

**1. Close to microeconomics:**

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

**2. Macroeconomics:**

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

**3. Normative statements:**

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

**4. Prescriptive actions:**

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

**5. Offers scope to evaluate each alternative:**

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

**6. Interdisciplinary:**

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

## **7. Managerial economic is descriptive:**

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

## **8. Managerial economic is application oriented:**

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

## **SCOPE OF MANAGERIAL ECONOMICS**

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

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



## **The main Areas of Managerial Economics**

### **1. Demand Decision:**

- The analysis and forecasting of demand for a given product and service is the first task of the managerial economist.
- The behavioral implications such as the needs of the customers responses to a given change in the price or supply are analyzed in a scientific manner.
- The impact of changes in prices, income levels and prices of alternative products / services are assessed and accordingly the decisions are taken to maximize the profits.
- Demand at different price levels at different points of time is forecast to plan the supply accordingly and initiate changes in price, if necessary, to enlarge the customer base and gain more profits.
- Determination elasticity of demand and demand forecasting constitute the strategic issues that the managerial economist handles in a scientific way.

## **2. Input-Output Decision:**

- Here, the costs of inputs in relation to output are studied to optimize the profits.
- Production function and cost function are estimated given certain parameters.
- The behavior of costs at different levels of production is assessed here.
- some costs are fixed, some are semi-variable and others are perfectly variable.
- The quantity of production increases remains constant or decreases with additional increase in outputs.
- This decision deals with changes in the production following changes in inputs which could be substitutes or complementary.
- The entire focus of this decision is to optimize(maximize) the output at minimum cost.
- If it is necessary for the manager to know the relationship between the cost and output both in the short-run and long-run to position his products amidst the competitive environment.

## **3. Price-Output Decision:**

- Here, the production is ready and the task is to determine the price these in different market situations such as perfect market and imperfect markets ranging from monopoly, monopolistic competition, duopoly and oligopoly.
- The features of these markets and how price is determined in each of these competitive situations is studied here.
- The pricing policies, methods, strategies and practices constitute crucial part of the study of managerial economics.

## **4. Profit -related Decisions:**

- Here we employ the techniques such as Break even analysis, cost reduction and cost control and ratio analysis to ascertain the level of profits.
- We determine break-even point beyond which firm start getting profits.
- In other words, if the firm produces less than break- even point, it loses.
- We can also plan the production needed to attain a given level of profits in short-run.
- Cost reduction and cost control deal with the strategies to reduce the wastage and thereby reduce the costs.
- These indirectly enhance the level of profits.
- Ratio analysis helps to determine the liquidity, solvency, profitability of the activities of the firm.
- There are certain ratios used to analyze and interpret the profitability of the firm given a set of accounting data.

## **5. Investment Decisions**

- Investment decisions are also called capital budgeting decisions.
- These involve commitment of large funds, which determine the fate of the firm.
- These decisions are irreversible.
- Hence the manager needs to be more attentive while committing his scarce funds, which have alternative uses.
- The allocation and utilization of investments is paramount importance.
- Capital has a cost. It is expensive. Hence, it is to be utilized in such a way as to maximize the return on capital invested.

- It is necessary to study the cost of capital structure and investment projects before the funds are committed.

## **6. Economic Forecasting and Forward Planning**

- Economic forecasting leads to forward planning.
- The firm operates in an environment which is dominated by the external and internal factors.
- The external factors include major forces such as government policy, competition, employment, labour, price and income levels and so on.
- These influence its decision relating to production, human resources, finance and marketing.
- The internal factors include its policies and procedures relating to finance, people, market and products.
- It is necessary to forecast the trends in the economy to plan for the future in terms of investments, profits, products and markets. This will minimize the risk and uncertainty about the future.

## **MANGERIAL ECONOMICS BRIDGES THE GAP BETWEEN ECONOMIC THEORY AND BUSINESS PRACTICE :**

Managerial economics is the economics that is applied in decision-making. Managerial economics serves as a link between abstract theory and managerial practice. It is based on economic analysis for recognizing problems, organizing information and evaluating alternatives.

Economics as a science is related with the problem of allocation of scarce resources among competing ends. These problems of allocation are regularly confronted by individuals, households, firms as well as economies. Economics provides a number of sophisticated concepts and analytical tools to understand and analyses such problems. Managerial economics, when seen in this light, may be viewed as economics applied to problems of choice of alternatives of economic nature and allocation of scarce resources by the firms. Thus, managerial economics involves analysis of allocation of the resources available to a firm or a unit of management among the activities of that unit. Hence, it is concerned with choice or selection among alternatives. Managerial economics is by nature goal-oriented and prescriptive and aims at maximum achievement of objectives.

A manager has the two primary tasks – making decisions and processing decision. Manager must be able to obtain, process and use information in order to make intelligent decisions. The objective of learning economic theory is to help managers know what managers should be obtained and how to process and use the information. Hence, managerial economist has gained an increasing importance in business in present time. The task of organizing and processing information and then making an intelligent decision based upon this information and the basic theory can take two general forms –

(i) Task of making specific decisions by managers

(ii) General task of managers to use readily available information to make a decision or carry out a course of action that furthers the goals of the organization.

**(i) Specific Tasks**– Managers might have to take various specific decisions e.g., whether or not to close down a branch of a firm that has recently been unprofitable; whether or not a store should remain open more

hours a day; or whether to pay for outside computing or copying services rather than install an in-house computer or copier. According to Alexander and Kemp, the managerial economist undertakes the following specific function –

- (a) Economic analysis of the industry
- (b) Pricing and related decisions
- (c) Demand forecasting
- (d) Production scheduling
- (e) Investment appraisal
- (f) Analyzing and forecasting environmental factors
- (g) Market research
- (h) Security management analysis
- (i) Advice on foreign exchange management

1. G) Advice on trade. All of these and many of other managerial decisions require the use of basic economics.

(ii) **General Tasks** – Economic theory helps decision-makers to know what information is essential to make an intelligent decision to achieve the correct solution to a problem and to learn how to process and use that information. When the desired information is obtained, the manager must analyses this information and use it in correspondence with the theoretical and statistical tools available to make the best decision possible under the circumstances. A business is affected by two sets of decision factors –

- (a) External factors, (b) Internal factors.

(a) **External Factors** – General economic condition of the economy is the most important external factor, which includes the level and rate of growth of national income, regional income distribution, effect of international factors on the domestic economy, the business cycle etc. Managerial economist must find and process information with regard to these changes, advise the management regarding their likely influences on the operations of the firm and suggest possible ways to further the goals of the organization.

The prospects of demand for the product is the second important external factor for a firm. A managerial economist tries to find the answers of the following questions and advises the firm according.

Thirdly, the managerial economist also tries to know if there is anything that is affecting the input cost of the firm.

Fourthly, a managerial economist must have the knowledge of market conditions of raw material and finished product. He has to understand the nature of the markets from which the firm is buying its raw

materials and of the market where it is selling its output, which helps the managerial economist to recommend a pricing policy for successful management of the firm.

Next, managerial economist can also help in the expansion of the firm's share in the market by finding out the opportunities and the policies which help in the expansion of the firm's share in the local and internal markets, and by understanding the nature and trend of demand.

Finally, managerial economist has also to keep a close look on the economic policies of the government and the central bank's monetary policies, annual budgets of the government, etc.

**(b) Internal Factors** – Managerial economist also plays a very important role in internal management. He helps in deciding about the production, sales and inventory schedules of the firm.

The best use of a managerial economist is in making the pricing and profit policies. Since the present day firms are often multi-product firms, a successful managerial economist tries to achieve for the firm the most profitable output mix and the best prices for its various outputs, given the market conditions. The firm also requires the aid of managerial economist for its investment decisions. For this, he requires to forecast the return on the investment and the cost that the firm incurs by taking up the investment. So, we see that managerial economist has a very important and vast role to play. He not only helps in the internal management but also analyses the external factors and suggests firm regarding their likely effects.

## **MANAGERIAL ECONOMICS RELATIONSHIP WITH OTHER DISCIPLINES**

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

### **1. Relationship with economics:**

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

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

### **2. Management theory and accounting:**

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

### **3. Managerial Economics and mathematics:**

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

### **4. Managerial Economics and Statistics:**

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

### **5. Managerial Economics and Operations Research:**

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

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

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

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

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

### **7. Managerial Economics and Computer Science:**

Computers have changed the way of the world functions and economic or business activity is no exception. Computers are used in data and accounts maintenance, inventory and stock controls and supply and demand predictions. What used to take days and months is done in a few minutes or hours by the computers. In fact computerization of business activities on a large scale has reduced the workload of managerial personnel. In most countries a basic knowledge of computer science, is a compulsory programme for managerial trainees.

To conclude, managerial economics, which is an offshoot of traditional economics, has gained strength to be a separate branch of knowledge. Its strength lies in its ability to integrate ideas from various specialized subjects to gain a proper perspective for decision-making.

A successful managerial economist must be a mathematician, a statistician and an economist. He must be also able to combine philosophic methods with historical methods to get the right perspective only then; he will be good at predictions. In short managerial practices with the help of other allied sciences.

## **DEMAND ANALYSIS**

### **INTRODUCTION TO DEMAND :**

- Demand in common parlance means the desire for an object.
- But in economics demand is something more than this.
- Every want supported by the willingness and ability to buy constitutes demand for a particular product or services.
- In other words, if I want a car and I cannot pay for it, there is no demand for the car from my side

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

- Desire on the part of the buyer to buy
- Willingness to pay for it
- Ability to pay the specified price for it.

### **DEFINITIONS OF DEMAND:**

#### **1. According to Stonier and Hague,**

“Demand in economics means demand backed up by enough money to pay for the goods demanded”.

- This means that the demand becomes effective only if it is backed by purchasing power in addition to this there must be willingness to buy a commodity.
- Thus demand in economics means the desire backed by the willingness to buy a commodity and the purchasing power to pay.

#### **2. In the words of Benham,**

“The demand for anything at a given price is the amount of it which will be bought per unit of time at that price ”.

- Thus demand is always at a price for a definite quantity at a specified time.
- Thus demand has three essentials i.e., price, quantity and time.
- Without these three demand has no significance in economics.

## **Nature and Types of Demand**

Demand always implies at a given price. How much is the quantity demanded at a given level of price? This is the volume of demand. The use and characteristics of different products affect their demand. In other words, a product with more number of uses is naturally more in demand than one with a single use. The nature of demand is better understood when we see these variations given below:

**1. Consumer Goods vs Producer Goods** Consumer goods refers to such products and services which are capable of satisfying human need. Goods can be grouped under consumer goods and producer goods. Consumer goods are those which are available for ultimate consumption. These give direct and immediate satisfaction. Examples are bread, apple, rice, and so on. Producer goods are those which are used for further processing or production of goods/services to earn income. Examples are machinery or a tractor, and such others. These goods yield satisfaction indirectly. These are used to produce consumer goods. There could be cases where a given product may be both a producer good and also a consumer good. For instance, take the case of paddy. A farmer having ten bags of paddy may use five bags for his personal consumption and the other five bags as seeds for the next crop. In such a case, paddy is both producer good and a consumer good. The demand for producer goods is 'indirect', whereas the demand for the consumer goods is 'direct'. Also, it is possible that consumer good for one can become producer good for another. A microwave oven at home is a consumer good and the same in a hotel is a producer good.

**2. Autonomous Demand vs Derived Demand** Autonomous demand refers to the demand for products and services directly. The demand for the services of a super speciality hospital can be considered as autonomous whereas the demand for the hotels around that hospital is called a derived demand. In case of a derived demand, the demand for a product arises out of the purchase of a parent product. If there is no demand for houses, there may not be demand for steel, cement, bricks, and so on. Demand for houses is autonomous whereas demand for these inputs is derived demand.

**3. Durable vs Perishable Goods** Here the demand for goods is classified based on their durability. Durable goods are those goods which give service relatively for a long period. The life of fish, and such. Rice, wheat, sugar and such others can be examples of perishable goods. Given certain freezing facilities, the life of perishable goods can be extended for some time. Products such as TV, refrigerator and washing machines and so on are useful for a longer period and hence they are classified as consumer durables.

**4. Firm Demand vs Industry Demand** The firm is a single business unit whereas industry refers to the group of firms carrying on similar activity. The quantity of goods demanded by a single firm is called firm demand and the quantity demanded by the industry as a whole is called industry demand. One construction company may use 100 tonnes of cement during a given month. This is firm demand. The construction industry in a particular state may have used ten million tonnes. This is industry demand.

A *demand schedule* presents the details of the quantity demanded at different prices. A demand schedule may be for an individual or firm, and also for a market or industry. Table 2.3 illustrates the individual demand schedule which shows the quantity of rice demanded at different price levels. It can be noted that as the price decreases, the quantity demanded is increasing.

In market demand schedule, the *aggregate* quantity demanded by all the firms or the customers is furnished. Table 2.4 illustrates market demand schedule.

Table 2.3

Individual Demand Schedule

Price (Rs.)	Quantity Demanded (kg of rice)
15	10
14	12
13	15
12	20
11	25
10	30

Table 2.4

Market Demand Schedule

Price (Rs.)	Quantity Demanded (Bags of rice)
15	100
14	120
13	150
12	200
11	250
10	300

**5. Short-run Demand vs Long-run Demand** Joel Dean defines short-run demand as 'the demand with its immediate reaction to price changes, income fluctuations and so on. Long-run demand is that demand which will ultimately exist as a result of the changes in pricing, promotion or product improvement, after enough time is allowed to let the market adjust itself to the given situation'.

The 'short-run' and 'long-run' cannot be clearly defined other than in terms of duration of time. The demand for a particular product or service in a given region for a particular day can be viewed as short-run demand. The demand for a longer period for the same region can be viewed as long-run demand. The existing demand based on the available tastes and technology at the current price is short-run demand. The demand that can be created in the long-run by changes in the design as a result of changes in technology is long run demand.

Short-run refers to a period of shorter duration and long-run refers to the relatively period of longer duration. In short-run, additional changes cannot be initiated in terms of expansion or hiring of additional plant and so on. You cannot expand the output overnight. The short-run is a period in which the firms can adjust their production by changing variable factors such as materials and labour. They cannot change fixed factors such as technology or capital. The long-run is a period relatively long so that all factors of production including capital can be adjusted to meet the market requirements.

The following example illustrates these concepts. The Steel Authority of India (SAIL) is operating its furnaces at 80 percent capacity when an unexpected increase in the demand for steel occurs as a result of the Gujarat earthquake. To adjust to the higher demand for steel, SAIL can increase its production by allowing overtime to its present staff, hiring more technical and non-technical staff and operating its furnaces more efficiently and effectively. All these factors are variable in nature and hence they can be increased in the short-run. The company is said to increase its production in the short-run.

On the other hand, if the company finds, in the years to come, an increase in the per capita steel consumption in the economy, it may reassess its capital requirements. Also it may add latest production processes. The period ahead of the company is said to be long-run. Thus in the long-run, all factors of production (including fixed and variable) can be adjusted; the total amount of production of steel will be higher. As a result of effective and efficient production processes, the cost of production per tonne of steel can be lower.

Both time and variable inputs such as materials and labour are required to produce goods and services with efficiency. Therefore, it is necessary to distinguish two different time periods in production and cost analysis.

This concept of short-run and long-run holds paramount importance in the study of managerial economics. Some of the cost concepts are also based on this classification.

**6. New Demand vs Replacement Demand** New demand refers to the demand for the new products and it is the addition to the existing stock. In replacement demand, the item is purchased to maintain the asset in good condition. The demand for cars is new demand and the demand for spare parts is replacement demand. Replacement demand may also refer to the demand resulting out of replacing the existing assets with the new ones. Many companies announce exchange schemes for TVs, washing machines and so on. They would like to tap the replacement demand. Normally when the market is saturated, producers would like to come out with exchange options.

**7. Total Market and Segment Market Demand** Let us take the consumption of sugar in a given region! The total demand for sugar in the region is the total market demand. The demand for sugar from the sweet-making industry from this region is the segment market demand. The market segmentation concept is very useful because it enables the study of its specific requirements, if any, such as taste and preferences, and so on. A market segment can be defined in terms of specific criteria such as location, age, sex or income and so on. The aggregate demand of all the segment markets is called the total market demand.

The different concepts of demand discussed above may imply certain commonalities. But each concept has a specific purpose and utility for the managerial economist for the purpose of decision making and forward planning.

## Bases & Examples for Types of Demand

S.NO	TYPES & NATURE OF DEMAND	BASES	EXAMPLES
1	Consumer Goods Vs Producer Goods	User, Individual or Firm	Automobiles – Steel, Rubber
2	Autonomous Demand Vs Derived Demand	Dependability, Direct or Indirect	Bike – Petrol Computer-Internet
3	Durable Goods Vs. Perishable Goods	Life of Good : Long or Short	Home Appliance – Bakery, Vegetables
4	Firm Demand Vs Industry Demand	Totality, Single or Aggregate	Airtel Demand – Telecom Industry
5	Short term Demand Vs Long term Demand	Duration : Short or Long	Below one Year – Above one Year
6	New Demand Vs Replacement Demand	Newness : New or Derived	Rexona to Hamam Bank Account
7	Total Market Demand Vs Segment Market Demand	Area of Demand: Part or Full	Whole Market – One State

## Demand Function

Demand function is a function which describes a relationship between one variable and its determinants. It describes how much quantity of goods is bought at alternative prices of good and related goods, alternative income levels, and alternative values of other variables affecting demand. Thus, the demand function for a good relates the quantity of a good which consumers demand during a given period to the factors which influence the demand. The above factors can be built up into a demand function.

Mathematically, the demand function for a product A can be expressed as follows:

$$Q_d = f(P, I, T, P_R, E_P, E_I, S_p, D_c, A, O)$$

Where  $Q_d$  refers to quantity of demand and it is a function of the following variables:  $P$  refers to price of the product;  $I$  refers to Income level of the consumer;  $T$  refers to tastes and preferences of the consumer;  $P_R$  refers to prices of related goods (substitutes/complementary);  $E_P$  refers to expectations about the prices in future;  $E_I$  refers to expectations about the incomes in future;  $S_p$  refers to size of population;  $D_c$  refers to distribution of consumers over different regions;  $A$  refers to advertising efforts and  $O$  refers to any other factors capable of affecting the demand.

## FACTORS / DETERMENTS OF DEMAND:

The demand for a particular product depends on several factors. The following factors determine the demand for a given product:

1. Price of the product ( $P$ )
2. Income level of the consumer ( $I$ )
3. Tastes and preferences of the consumer ( $T$ )
4. Prices of related goods which may be substitutes / complementary ( $P_R$ )
5. Expectations about the prices in future ( $E_P$ )
6. Expectations about the incomes in the future ( $E_I$ )
7. Size of the population ( $S_p$ )
8. Distribution of consumers over different regions ( $D_c$ )
9. Advertising efforts ( $A$ )
10. Any other factor capable of affecting the demand ( $O$ )

The impact of these determinants on demand can be described as follows :

### 1. Price of the product ( $P$ )

- The most important factor affecting on demand is the price of the product.
- The amount of the product demanded at a particular price is more popularly called price demand. The relation between price and demand is called the Law of Demand.
- Demand for a product is inversely related to its price
- It is not only the existing price but also expected changes in price, which affect demand.

### 2. Income level of the consumer ( $I$ )

- In fact we can establish a relationship between the consumer income and demand at different levels of income, price and other things remaining same.
- The demand for a normal commodity goes up and falls down when income rises and falls down.
- But in case of Giffen goods the relationship is opposite.
- Demand always changes with a change in the incomes of the people.
- When income increases the demand for several commodities increases and vice versa

### **3. Tastes and preferences of the consumer ( $T$ )**

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

### **4. Prices of related goods which may be substitutes / complementary ( $P_R$ )**

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

- (i). **Substitutes** which can replace each other in use; for example, tea and coffee are substitutes. The change in price of a substitute has effect on a commodity's demand in the same direction in which price changes. The rise in price of coffee shall raise the demand for tea;
- (ii). **Complementary goods** are those which are jointly demanded, such as pen and ink. In such cases complementary goods have opposite relationship between price of one commodity and the amount demanded for the other. If the price of pens goes up, their demand is less as a result of which the demand for ink is also less. The price and demand go in opposite direction. The effect of changes in price of a commodity on amounts demanded of related commodities is called Cross Demand.

### **5. Expectations about the prices in future ( $E_P$ )**

- If consumers expect changes in price of commodity in future, they will change the demand at present even when the present price remains the same.

### **6. Expectations about the incomes in the future ( $E_I$ )**

- If consumers expect their incomes to rise in the near future they may increase the demand for a commodity just now.

### **7. Size of the population ( $S_P$ )**

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

### **8. Distribution of consumers over different regions ( $D_C$ )**

- Demand changes according to people culture living in different regions
- For example, North Indians have demand for Rotis and South Indians have demand for Rice

### **9. Advertising efforts ( $A$ )**

- Advertisement has become the most popular means in changing the demand for a commodity in the modern world.
- By a regular advertisement the preference of the consumers can be influenced.

### **10. Any other factor capable of affecting the demand ( $O$ )**

- Other factors like change in government policy, tax rates , climate conditions, wealth of the consumers will impact the demand

## LAW OF DEMAND

### Law of demand Definitions

- **ALFRED MARSHALL** stated that Law of Demand as

“a rise in the price of commodity or service is followed by a reduction in demand and fall in price is followed by an increase in demand, if the conditions of demand remain constant.”

Marshall stated that the Law of Demand basing on the law of Diminishing Marginal Utility

- In the words of **SAMUELSON** The Law of Demand may be stated as

“Other things being equal, the quantity demanded increases with a fall in price and decreases with a rise in price.”

### Law of Demand Meaning

- Law of demand states the relationship between price and quantity demanded.
- As per the law when price is increased demand will decrease, and similarly, when price is decreased demand will increase, this law assumed that, other things remaining constant, the change in price will inversely affect demand, thus the relationship between price and demand is inverse.

A rise in the price of a commodity is followed by a fall in demand and a fall in price is followed by a rise in demand, if a condition of demand remains constant.

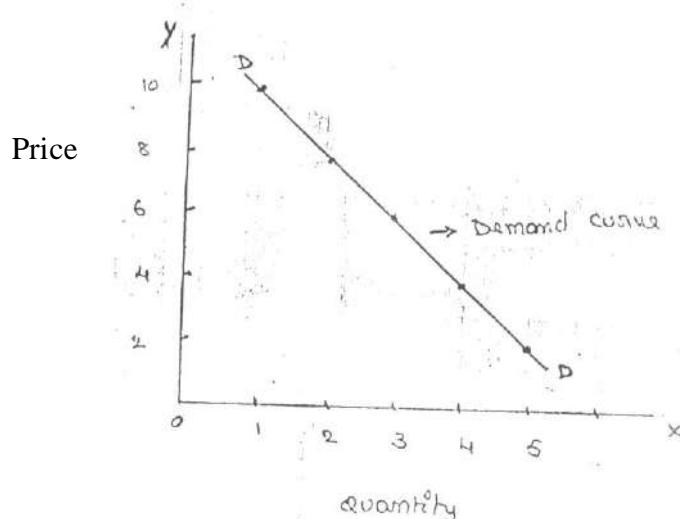
### Demand Schedule

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

When the price falls from Rs. 10 to 8 quantity demand increases from 1 to 2. In the same way as price falls from Rs 10 to Rs. 2 , quantity demand increases from 1 to 5 .

## Demand Curve

On the basis of the demand schedule we can draw the demand curve.



- The demand curve DD shows the inverse relation between price and quantity demand of apple. It is downward sloping.
- In the above Diagram, demand is shown on OX –axis and price is shown on OY-axis.
- The demand curve slopes downward from left to right.

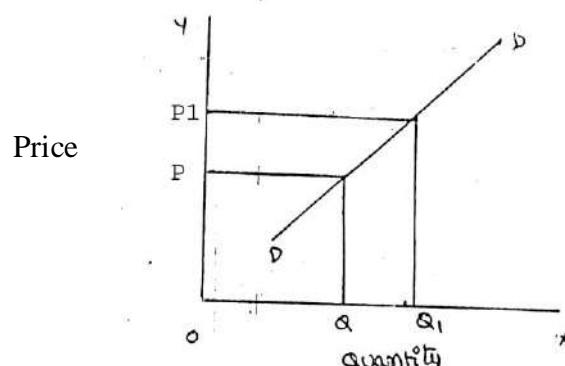
### Assumptions:

Law of demand is based on certain assumptions:

1. There is no change in consumers' taste and preferences.
2. Income should remain constant.
3. Prices of other goods should not change.
4. There should be no substitute for the commodity.
5. The commodity should not confer any distinction.
6. The demand for the commodity should be continuous.
7. People should not expect any change in the price of the commodity.

### EXCEPTIONS TO LAW OF DEMAND (Exceptional Demand Curve)

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



When price increases from OP to O<sub>1</sub>P<sub>1</sub> quantity demanded also increases from OQ to O<sub>1</sub>Q<sub>1</sub> and vice versa.

**The reasons for exceptional demand curve are as follows.**

**1. Giffen paradox:**

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

**2. Veblen or Demonstration effect:**

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

**3. Ignorance:**

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

**4. Speculative effect:**

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

**5. Fear of shortage:**

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

**6. Necessaries:**

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

**SIGNIFICANCE OF LAW OF DEMAND**

The law of demand is the primary law in the consumption theory in economics. It indicates the consumer behavior for a given change in the variables in the study. Despite the assumption that other things remaining the same, the results of the law of demand are time tested and have been the basis for further decisions relating to costs, output, investment appraisals and so on. This provides the basis for analysis of other economic laws.

To sum up, organizations spend huge amount of resources to understand the consumer behavior and to know where demand exists for what products and services.

## ELASTICITY OF DEMAND

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

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

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

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

### TYPES OF ELASTICITY OF DEMAND:

There are Four types of elasticity of demand:

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

#### **1. Price elasticity of demand:**

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

$$\text{Price Elasticity of Demand} = \frac{\text{Proportionate change in the quantity demanded for product}}{\text{Proportionate change in price of product}}$$

The same expressed as

$$Edp = \frac{\frac{(Q_2 - Q_1)}{Q_1}}{\frac{(P_2 - P_1)}{P_1}}$$

Where  $Q_1$  = quantity demanded before price change

$Q_2$  = quantity demanded after price change

$P_1$  = price before change

$P_2$  = price after change

## **2. Income elasticity of demand:**

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

$$\text{Income Elasticity of Demand} = \frac{\text{Proportionate change in the quantity demanded for product}}{\text{Proportionate change in Income}}$$

The same expressed as

$$\text{Edi} = \frac{\frac{(Q_2 - Q_1)}{Q_1}}{\frac{(I_2 - I_1)}{I_1}}$$

Where  $Q_1$  = quantity demanded before Income change

$Q_2$  = quantity demanded after Income change

$I_1$  = Income before change

$I_2$  = Income after change

## **3. Cross elasticity of Demand:**

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

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

The same expressed as

$$\text{Edi} = \frac{\frac{(Q_2x - Q_1x)}{Q_1x}}{\frac{(P_2y - P_1y)}{P_1y}}$$

Where  $Q_1x$  = quantity demanded for product X before price change in product Y

$Q_2x$  = quantity demanded for product X after price change in product Y

$P_1y$  = price before change in product Y

$P_2y$  = price after change in product Y

#### 4. Advertising Elasticity of Demand

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

$$\text{Advertising Elasticity of Demand} = \frac{\text{Proportionate change in the quantity demanded for product } X}{\text{Proportionate change in advertisement costs}}$$

The same expressed as

$$Eda = \frac{\frac{(Q_2 - Q_1)}{Q_1}}{\frac{(A_2 - A_1)}{A_1}}$$

Where  $Q_1$  = quantity demanded for product X before change

$Q_2$  = quantity demanded for product X after change

$A_1$  = Amount spent on advertisement before change

$A_2$  = Amount spent on advertisement after change

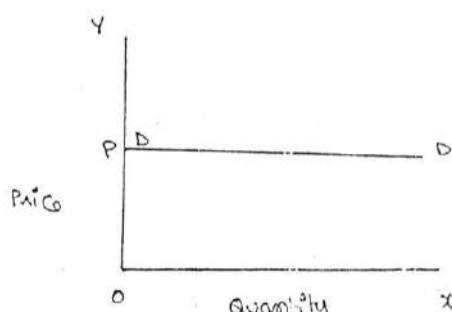
### **MEASUREMENTS OF ELASTICITY OF DEMAND ( Measurements of Price Elasticity of Demand)**

There are 5 Measurements of Elasticity of Demand. They are

- 1) Perfectly Elastic Demand (  $E = \infty$  )
- 2) Perfectly Inelastic Demand (  $E = 0$  )
- 3) Relatively Elastic Demand (  $E > 1$  )
- 4) Relatively Inelastic Demand (  $E < 1$  )
- 5) Unity Elasticity of Demand (  $E = 1$  )

#### **1) Perfectly Elastic Demand ( $E = \infty$ )**

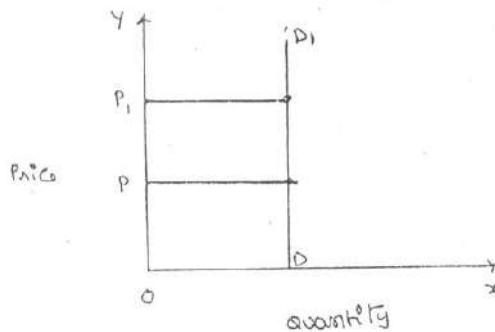
When small change in price leads to an infinitely large change in quantity demand, it is called perfectly or infinitely elastic demand. In this case  $E=\infty$



The demand curve  $DD_1$  is a horizontal straight line. It shows that at "OP" price any amount is demanded and if price increases, the consumer will not purchase the commodity.

## 2) Perfectly Inelastic Demand ( $E = 0$ )

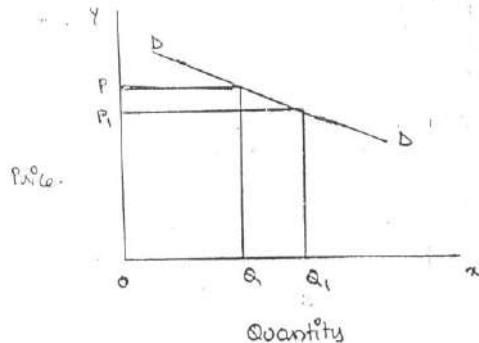
In this case, even a large change in price fails to bring about a change in quantity demanded.



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

## 3) Relatively Elastic Demand ( $E > 1$ )

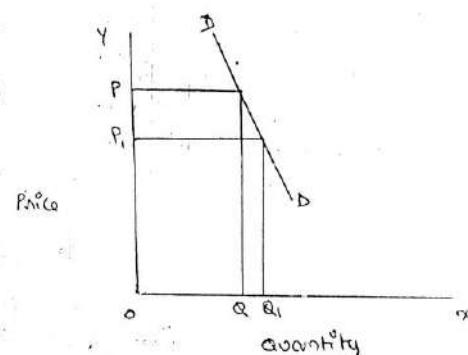
Demand changes more than proportionately to a change in price. i.e. a small change in price leads to a very big change in the quantity demanded. In this case  $E > 1$ . This demand curve will be flatter.



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

## 4) Relatively Inelastic Demand ( $E < 1$ )

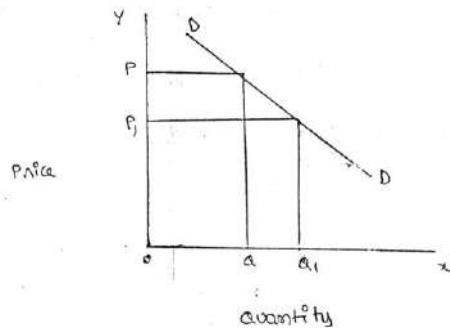
Quantity demanded changes less than proportional to a change in price. A large change in price leads to small change in amount demanded. Here  $E < 1$ . Demanded curve will be steeper.



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

## 5) Unity Elasticity of Demand ( E = 1 )

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



When price falls from 'OP' to 'OP1' quantity demanded increases from 'OP' to 'OP1', quantity demanded increases from 'OQ' to 'OQ1'. Thus a change in price has resulted in an equal change in quantity demanded so price elasticity of demand is equal to unity.

to Price

## ~~FACTORS GOVERNING ELASTICITY OF DEMAND~~

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

(a) **Nature of product** Based on their nature, the products and services are classified into necessities, comforts and luxuries. Necessaries imply the absolute or basic necessities such as food, clothing, housing. Comforts refer to TV, refrigerator and so on. By luxuries, we mean sofa sets, marble flooring in a house and such others. The meaning and definition of these necessities, luxuries and comforts change from person to person, time to time and place to place. For example, a scooter may be a comfort or luxury for a student but when he does a part-time job, it may be a necessity for him.

The nature of product has a significant impact on the elasticity of demand. For instance, if there is an increase in the price of rice, we still buy it because it is a necessity for us. This means that the demand is inelastic to price. Though there is an increase in price, we tend to buy the necessities such as petrol, diesel and so on. In other words, the demand does not fall because of increase in price. From this, we can say that the necessities have inelastic demand. For comforts and luxuries, the demand is relatively elastic. It means that any increase in the price of comforts or luxuries will lead to moderate to significant fall in their demand.

(b) **Time frame** The more the time available for the customer, the demand for a particular product may be elastic and vice versa. Take the case of vegetables. When you do not have time, you go to a nearby shop and buy whatever you want at the given price. Had you had little free time, you would have preferred to get the same from a vegetable market at lesser price.

(e) **Degree of postponement** Where the product consumption can be postponed, the product is said to have elastic demand and where it cannot be postponed, it is said to have inelastic demand. The consumption of necessities cannot be postponed and hence they have inelastic demand.

(f) **Number of alternative uses** If the number of alternative uses are more, the demand is said to be highly inelastic 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, and so on.

(g) **Tastes and preferences of the consumer** Where the customer is particular about his taste and preferences, the product is said to be inelastic. For the customers who are particular or loyal to certain brands such as Colgate, Tata Tea, Annapurna Atta, and so on, price increases do not matter. They tend to buy that brand inspite of the price changes.

(h) **Availability of close substitutes** Where there are a good number of close substitutes, the demand is said to be elastic and vice versa. For gold, there is no close and literal substitute and hence the demand for gold is inelastic. If coffee and tea are equally good for me, if there is an increase in price of coffee, I may tend to switch over to tea. But this may not hold good when I am particular about coffee only. I may be prepared to pay higher price for coffee.

(i) **In case of complementaries or joint goods** In case of complementaries or goods having joint demand, the elasticity is comparatively low.

(j) **Level of prices** If the price is very expensive (such as diamonds) or very cheap (such as salt), then the product is likely to have an inelastic demand. If the price is too high, a fall in it will not increase the demand 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 price changes. 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.

(k) **Availability of subsidies** Subsidy refers to money paid by a government or other public authority in order to help a company 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, wheat and so on.

(l) **Expectation of prices** Where people expect a fall in the price, the demand for the product is likely to be inelastic.

(m) **Durability of the product** Where the product is durable in case of consumer durables such as TV, the demand is elastic. In the case of perishable goods such as milk, the demand is inelastic.

(n) **Government policy** Where the government policy is liberal, the product is likely to have elastic demand and vice versa. Government, in the interest of the lower income group consumers, closely monitors the prices of certain products (such as, ration goods as sold in fair price shops are likely to have inelastic demand). Also, another example could be taxes. Government can raise tax collections with a little reduction in the tax rates.

## **Significance of Elasticity of Demand**

The concept of elasticity is very useful to the producers and policy-makers alike. It is a very valuable tool to decide the extent of increase or decrease in price for a desired change in the quantity demanded for the products and services in the firm or the economy. The following are its applications:

- to fix the prices of factors of production

- (b) to fix the prices of goods and services provided rendered
- (c) to formulate or revise government policies
- (d) to forecast demand
- (e) to plan the level of output and price

These are explained below:

**(a) Prices of factors of production** The factors of production are land, labour, capital organisation and technology. These have a cost. We have to pay rent, wages, interest, profits and price for these factors of production. Now, the question is how much do we have to pay for each of these factors. The elasticity here depends on the supply of each of the factors vis-a-vis the demand for each of them respectively. For instance, where the labour is organised and unionised, the labour is said to be inelastic. Similarly, in a village, demand for land may be elastic, whereas in the case of an industrial township, it is inelastic. A higher rent has to be paid for the facilities available there.

**(b) Price fixation** The manufacturer can decide the amount of price that can be fixed for his product based on the concept of elasticity. If there is no competition, in other words, in the case of a monopoly, the manufacturer is free to fix his price as long as it does not attract the attention of the government. Where there are close substitutes, the product is such that its consumption can be postponed, it cannot be put to alternative uses and so on, then the price of the product cannot be fixed very high.

#### **(c) Government policies**

(i) *Tax policies* Government extensively depends on this concept to finalise its policies relating to taxes and revenues. Where the product is such that the people cannot postpone its consumption, the government tends to increase its price, such as petrol and diesel, cigarettes, and so on. The finance minister uses elasticity concept to identify the various products and services where the taxes can be levied, and where relief can be extended to bring about the desired changes in the production, consumption, savings or investments.

(ii) *Raising bank deposits* If the government wants to mobilise larger deposits from the customers, it proposes to raise the rates of fixed deposits marginally and vice versa.

(iii) *Public utilities* Government uses the concept of elasticity in fixing charges for the public utilities such as electricity tariff, water charges, ticket fare in case of road or rail transport and so on.

(iv) *Revaluation or devaluation of currencies* The government has to study the impact of revaluation or devaluation on the interests of the exporters and importers.

(v) *Formulate government policy* If the product is such that the demand is inelastic, the government would like to exercise close control over the matters relating to its supply and demand.

**(d) Forecasting demand** Income elasticity is used to forecast demand for a particular product or service. The demand for the products can be forecast at a given income level. The trader can estimate the quantity of goods to be sold at different income levels to realise the targeted revenue. In other words, the impact of changing income levels on the demand of the product can be assessed with the help of income elasticity.

**(e) Planning the levels of output and price** The knowledge of price elasticity is very useful to producers. The producer can evaluate whether a change in price will bring in adequate revenue or not. In general, for items whose demand is elastic, it would benefit him to charge relatively low prices. On the other hand,

if the demand for the product is inelastic, a little higher price may be helpful to him to get huge profits without losing sales.

To sum up, elasticity is an equally valuable tool for the producer, trader and policy-makers.

## DEMAND FORECASTING

Demand forecasting refers to an estimate of future demand for the product. It is an objective assessment of the future course of demand, in recent times, forecasting plays an important role in business decision – making. The survival and prosperity of a business firm depend on its ability to meet the consumer's needs efficiently and adequately. Demand forecasting has an important influence on production planning. It is essential for a firm to produce the required quantities at the right time.

It is also essential to distinguish between forecasting of demand and forecast of sales, sales forecasts are important for estimating revenue, cash requirements and expenses whereas, demand forecasting relate to production, inventory control, timing, reliability of forecast etc. however, there is not much difference between these terms.

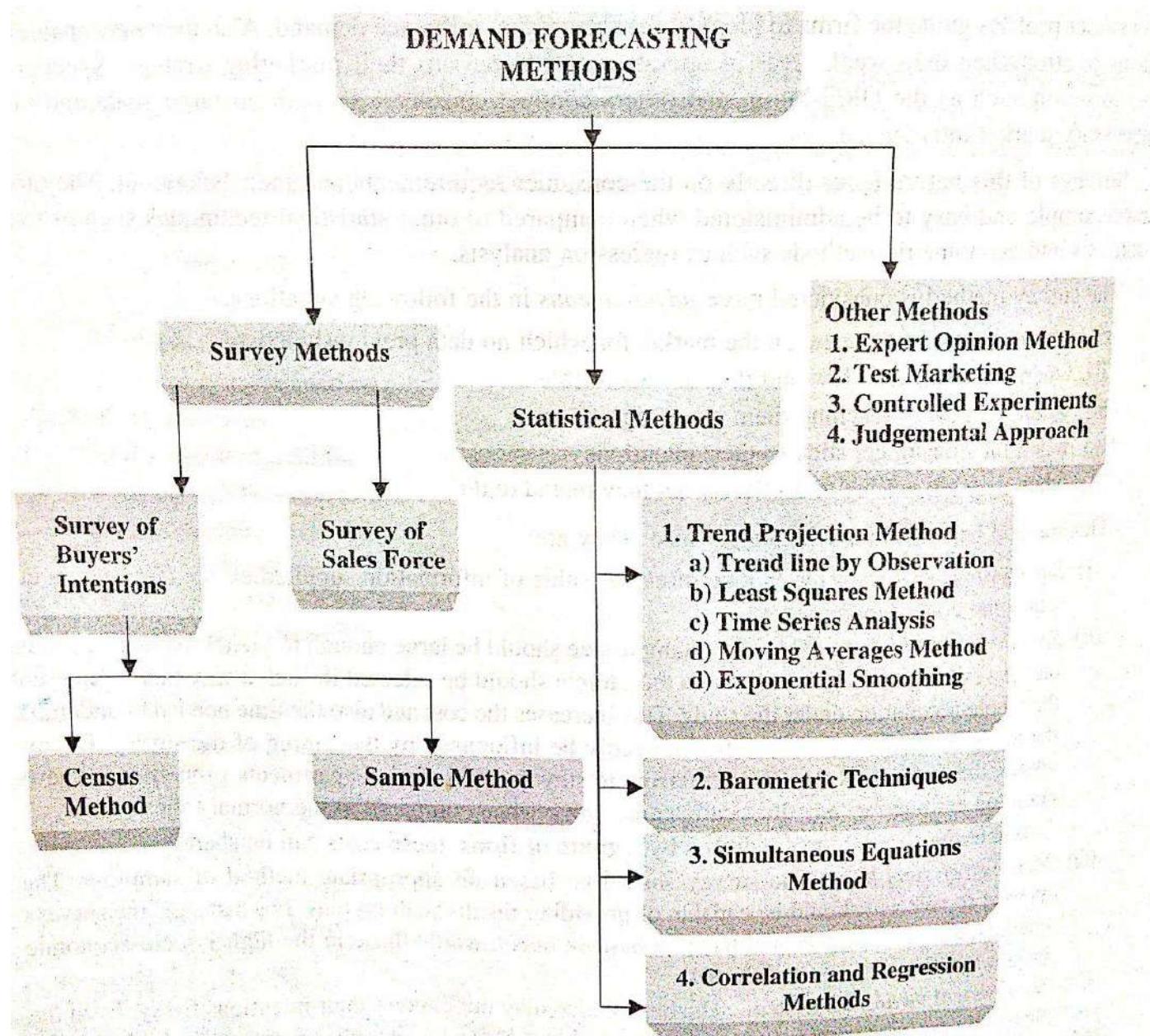


Fig. 4.2 *Methods of Demand Forecasting*

## **1. SURVEY METHODS**

### **( a ) Survey of Buyer Intentions**

To anticipate what buyers are likely to do under a given set of circumstances, a most useful source of information would be the buyers themselves. It is better to draw a list of all potential buyers, approach each buyer to ask how much does he plans to buy of the given product at a given point of time under particular conditions. This is the most effective method because the buyer is the ultimate decision maker and we are collecting the information directly from him.

The survey of buyers can be conducted either by covering the whole population or by sample group of buyers.

Suppose there are 10,000 buyers for a particular product. If the company wishes to elicit the opinion of all the buyers, this method is called census method or total enumeration method. This method is not only time consuming but also costly.

On the other hand, the firm can select a group of buyers who can represent the whole population. This method is called the sample method. A survey of buyers based on sample basis can be completed faster with relatively lower costs.

### **(b) Sales Force Method:**

Another source of getting reliable information about the possible level of sales or demand for a given product or services is the group of people who sell the same. Thus we can control the limitations of cost and delays in contracting the customers.

## **2. STATISTICAL METHODS**

Statistical method is used for long run forecasting. In this method, statistical and mathematical techniques are used to forecast demand. This relies on past data.

### **1. Trend projection method:**

These are generally based on analysis of past sales patterns. These methods dispense with the need for costly market research because the necessary information is often already available in company files. This method is used in case the sales data of the firm under consideration relate to different time periods, i.e., it is a time – series data. There are five main techniques of mechanical extrapolation.

#### **a. Trend line by observation:**

This method of forecasting trend is elementary, easy and quick. It involves merely the plotting of actual sales data on a chart and them estimating just by observation where the trend line lies. The line can be extended towards a future period and corresponding sales forecast is read form the graph.

#### **b. Least squares methods:**

This technique uses statistical formulae to find the trend line which best fits the available data. The trend line is the estimating equation, which can be used for forecasting demand by extrapolating the line for future and reading the corresponding values of sales on the graph.

**c. Time series analysis:**

Where the surveys or market tests are costly and time – consuming, statistical and mathematical analysis of past sales data offers another methods to prepare the forecasts, that is, time series analysis.

**d. Moving average method:**

This method considers that the average of past events determine the future events. In other words, this method provides consistent results when the past events are consistent and unaffected by wide changes.

**e. Exponential smoothing:**

This is a more popular technique used for short run forecasts. This method is an improvement over moving averages method, unlike in moving averages method, all time periods here are given varying weight, that is , value of the given variable in the recent times are given higher weight and the values of the given variable in the distant past are given relatively lower weights for further processing.

**2. Barometric Technique:**

Simple trend projections are not capable of forecasting turning points. Under Barometric method, present events are used to predict the directions of change in future. This is done with the help of economics and statistical indicators. Those are (1) Construction Contracts awarded for building materials (2) Personal income (3) Agricultural Income. (4) Employment (5) Gross national income (6) Industrial Production (7) Bank Deposits etc.

**3. Simultaneous equation method:**

In this method, all variable are simultaneously considered, with the conviction that every variable influence the other variables in an economic environment. Hence, the set of equations equal the number of dependent variable which is also called endogenous variables.

**4. Correlation and regression methods:**

Correlation and regression methods are statistical techniques. Correlation describes the degree of association between two variable such as sales and advertisement expenditure. When the two variable tend to change together, then they are said to be correlated.

In regression analysis, an equation is estimated which best fits in the sets of observations of dependent variables and independent variables.

**3. OTHER METHODS:**

**1.Expert opinion methods:**

Well informed persons are called experts; experts constitute yet another source of information. These persons are generally the outside experts and they do not have any vested interest in the results of a particular survey. As expert is good at forecasting and analysis the future trend in a give product or service at a given level of technology. The service of an expert could be advantageously used when a firm uses general economic forecasting or special industry fore casting prepared outside the firm.

## **2. Test marketing:**

It is likely that opinions given by buyers, salesman or other experts may be, at times, misleading. This is the reason why most of the manufactures favour to test their product or service in a limited market as test – run before they launch their product nationwide.

## **3. Controlled experiments:**

Controlled experiment refer to such exercise where some of the major determinants of demand are manipulated to suit to the customers with different tastes and preferences, income groups, and such others, it is further assumed that all other factors remain the same.

## **4. Judgmental approach:**

When none of the above methods are directly related to the given product or service, the management has no alternative other than using its own judgment. Even when the above methods are used, the forecasting process is supplemented with the factor of judgment for the following reasons

- Historical data for significantly long period is not available
- Turning point in terms of policies or procedures or causal factors cannot be precisely determined
- Sale fluctuation are wide and significant
- The sophisticated statistical techniques such as regression and so on, may not cover all the signing.

# **FACTORS GOVERNING DEMAND FORECASTING**

## **a) Functional nature of demand:**

Market demand for a particular product or service is not a single number but it is a function of a number of factors, for instance, higher volumes of sales can be realized with higher levels of advertising or promotion efforts.

## **b) Types of forecasting:**

Based on the period under forecast, the demand forecast can be of two types 1) short – run forecasting and 2) long – run forecasting. Short run forecasts cover a period of one year whereas long- run forecasting any period ranging from one year to 20 years.

## **c) Forecasting level:**

The forecasting ,au ne at the firm level, industry level, national level or at the global level.

**1. Firm level:** firm level means estimating the demand for the products and services offered by a single firm

**2. Industry level:** the aggregate demand estimated for the good and service of all the firms constitutes the industry level forecast. The total estimate of different trade associations can also be view as industry level forecast.

**3. National level :** national level forecasting is for the whole economy, national level forecasts are worked out based on the levels of income, savings of the consumers.

**4. Global level:** globalization and deregulation , the entrepreneurs have started exploring the foreign markets for which the global level forecasts are utilized.

**d) Degree of orientation:**

Demand forecasts can be worked out based on total sales or product or service wise sales for a given time period. Forecasting in terms of total sales can be viewed as general forecast whereas product or service – wise or region or customer segment – wise forecast is referred to as specific forecast.

**e) New product:**

It is relatively easy to forecast demand for established products or products which are currently in use. The new product in consideration can be analyzed as a substitute for some existing product. Assess the demand through a sampled or total survey of consumers' intentions over the new product features and price.

**f) Nature of good:**

The goods are classified into producer goods, consumer goods, consumer durables and services. The patterns of forecasting in each of these differ.

**g) Degree of competition:**

There may be a single trader or a few traders depending upon the nature of goods and services.

**STEPS IN DEMAND FORECASTING:**

The following steps constitute a scientific approach to demand forecasting

- (a) Identify and state the objectives of forecasting clearly
- (b) Select appropriate method of forecasting , in the light of ( a)
- (c ) Identify the variables affecting the demand for the given product or service
- (d) Express these variables in appropriate forms
- (e) Collect the relevant data to represent the variables
- ( f) Determine the most probable relationship between the dependent variable and independent variable, using the appropriate statistical techniques
- ( g) Make appropriate assumptions to forecast and interpret results in terms of market share, turnover in terms of value and volume, product groups, individual products, sizes and brands of each individual products and so on.
- ( h) Let there be alternative forecasts to make the Forecasting exercise more meaningful

## PROBLEMS

### Example 1 Elastic price demand ( $e > 1$ ):

Determine the price elasticity of demand given that

- the quantity demanded for product M is 1000 units at a price of Rs. 100.
- the price declines to Rs. 90 and the quantity demanded increases to 1500 units.

*Solution*

$$Edp = \frac{(Q_2 - Q_1)/Q_1}{(P_2 - P_1)/P_1}$$

Let us define these variables here.

$Q_1 = 1000$  units (quantity before change)

$Q_2 = 1500$  units (quantity after change)

$P_1 = \text{Rs. } 100$  (price before change)

$P_2 = \text{Rs. } 90$  (price after change)

$$Edp = \frac{(1500 - 1000)/1000}{(90 - 100)/100} = -5$$

Since  $Edp$  is  $-5$ , it means that for a 10 percent change in price, there is a change in demand by 50 percent. Where the numerical value of elasticity is more than one, the demand is *elastic*. In other words, the percentage of increase in quantity demanded is more than the percentage of decrease in price.

### Example 2 Inelastic price demand ( $e < 1$ ):

Determine the price elasticity of demand given that

- the quantity demanded for product M is 1000 units at a price of Rs. 100.
- the price declines to Rs. 70 and the quantity demanded increases to 1100 units.

*Solution*

$$Edp = \frac{(Q_2 - Q_1)/Q_1}{(P_2 - P_1)/P_1}$$

Let us define these variables here.

$Q_1 = 1000$  units (quantity before change)

$Q_2 = 1100$  units (quantity after change)

$P_1 = \text{Rs. } 100$  (price before change)

$P_2 = \text{Rs. } 70$  (price after change)

$$Edp = \frac{(1100 - 1000)/1000}{(70 - 100)/100} = -0.33$$

Since  $Edp$  is  $-0.33$ , it means that for a 10 percent fall in price, there is an increase in demand by 3.3 percent. Where the numerical value of elasticity is less than one, the price demand is *inelastic*. In other words, the percentage of increase in quantity demanded is less than the percentage of decrease in price.

### Example 3 Unity price elasticity ( $e = 1$ ):

Determine the price elasticity of demand given that

- the quantity demanded for product M is 1000 units at a price of Rs. 100.
- the price declines to Rs. 50 and the quantity demanded increases to 1500 units.

*Solution*

$$Edp = \frac{(Q_2 - Q_1)/Q_1}{(P_2 - P_1)/P_1}$$

Let us define these variables here.

$Q_1 = 1000$  units (quantity before change)

$Q_2 = 1500$  units (quantity after change)

$P_1 = \text{Rs. } 100$  (price before change)

$P_2 = \text{Rs. } 50$  (price after change)

$$\begin{aligned} Edp &= \frac{(1500 - 1000)/1000}{(50 - 100)/100} \\ &= 1.0 \end{aligned}$$

Since  $Edp$  is  $1$ , it means that for a 50 percent fall in price, there is an increase in demand by 50 percent. Where the numerical value of elasticity is equal to one, the price demand is *unity elasticity*. In other words, the percentage of increase in quantity demanded is equal to the percentage of decrease in price.

(ii) **Least Squares Method** Certain statistical formulae are used here to find the trend line which "best fits" the available data. The trend line is the basis to extrapolate the line for future demand for the given product or service on graph. Here it is assumed that there is a proportional (linear) change in sales over a period of time. In such a case, the trend line equation is in linear form. Where this assumption does not hold good, the equation can be in non-linear form.

The estimating linear trend equation of sales is written as:

or

$$S = x + y(T)$$

Where  $x$  and  $y$  have been calculated from past data  $S$  is sales and  $T$  is the year number for which the forecast is made. To find the values of  $x$  and  $y$ , the following normal equations have to be stated and solved:

$$\sum S = Nx + y \sum T$$

$$\sum ST = x \sum T + y \sum T^2$$

Where  $S$  is the sales;  $T$  is the year number,  $n$  = number of years

### Example 1

Year	1996	1998	2000	2002	2004
Sales (Rs. in lakhs)	75	84	92	98	88

Estimate the sales for the years 2004 and 2006.

*Solution*

State and solve the normal equations to determine the values of  $x$  and  $y$  in the trend equation.

$$\sum S = Nx + y \sum T$$

$$\sum ST = x \sum T + y \sum T^2$$

Let us now determine the following:

$$\sum S, \sum ST, \sum T \text{ and } \sum T^2$$

Year	Year no. ( $T$ )	Sales ( $S$ ) (Rs. in lakhs)	$ST$	$T^2$
1992	1	75	75	1
1994	3	84	252	9
1996	5	92	460	25
1998	7	98	686	49
2000	9	88	792	81
$\sum T = 25$		$\sum S = 437$	$\sum ST = 2265$	$\sum T^2 = 165$

By substituting the above values in the normal equations, we get

$$437 = 5x + 25y$$

$$2265 = 25x + 165y$$

By solving these equations, we get  $x = 77.4$  and  $y = 2$ . Years 2004 and 2006 take on the year numbers 11 and 13 respectively.

By substituting these values in the trend equation  $x + y(T)$

$$\begin{aligned} S_{2002} &= 77.4 + 2(11) \\ &= 99.4 \text{ lakh units.} \end{aligned}$$

$$\begin{aligned} S_{2004} &= 77.4 + 2(13) \\ &= 103.4 \text{ lakh units.} \end{aligned}$$

Thus the forecast sales for year 2004 and 2006 are 99.4 and 103.4 lakh units.

- 2 From the following data, using method of least squares, estimate the sales for the years 2010 and 2012.

Year	2000	2002	2004	2006	2008
Sales (Rs. in Lakhs)	140	100	170	180	200

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

This method is easy to compute. One major advantage with this method is that the old data can be dispensed with, once the averages are computed. These averages, not the original data, are further used as the forecast for next period.

The main shortcoming of this method is that it gives equal weightage to data both in the recent past and the earlier one.

The following example illustrates the concept of moving averages method.

### Example 2

Compute 3-day moving average from the following daily sales data.

Date and month	Daily sales (Lakhs of tonnes)	3-day Moving average
Jan. 1	40	
2	44	
3	48	
4	45	44
5	53	45.7

### Solution

To calculate 3-day moving average,

$$S_4 = \frac{40 + 44 + 48}{3} = 44$$

$$S_5 = \frac{44 + 48 + 45}{3} = 45.7$$

**(v) Exponential smoothing** This is a more popular technique used for short run forecasts. This method is an improvement over moving averages method. Unlike in moving averages method, all time periods

(ranging from the immediate past to distant past) here are given varying weights, that is, the values of the given variable in the recent times are given higher weights and the values of the given variable in the distant past are given relatively lower weights for further processing. The reason is obvious: it is assumed that the nearest future is more or less based on the recent past. This method proves more realistic when the data is consistent all through the year, unaffected by wide seasonal fluctuations.

The formula used for exponential smoothing is:

$$S_{t+1} = cS_t + (1 - c) Sm_t$$

Where

$S_{t+1}$  = Exponentially smoothed average for new year

$S_t$  = actual data in the most recent past

$Sm_t$  = most recent smoothed forecast

$c$  = smoothing constant.

If the smoothing constant ' $c$ ' is higher, higher weight is given to the most recent information. The value of ' $c$ ' varies between 0 and 1 inclusive and the exact value of  $c$  is determined by the magnitude of random variations. If the magnitude of random variations is large, lower value to  $c$  is assigned and vice versa. However, it is considered that a value between 0.1 and 0.2 is more appropriate in most of the cases.

**Example3**

The concept of exponential smoothing.

<i>Time period</i>	<i>Actual sales (<math>S_t</math>) (units in lakhs)</i>	<i>Predicted sales (units in lakhs)</i>
1	5.0	
2	5.6	
3	6.7	
4	5.8	
5	6.9	5.775
6	5.1	5.887
7	8.1	5.808

*Solution*

Let us take four period average as the initial forecast Year 5 while smoothing constant of  $c = 0.1$

$$\begin{aligned} S_5 &= (S_1 + S_2 + S_3 + S_4)/4 \\ &= (5.0 + 5.6 + 6.7 + 5.8)/4 \\ &= (23.1)/4 \\ &= 5.775 \end{aligned}$$

Sales for  $S_5 = 6.9$ ;  $S_6$  is calculated as given below:

$$\begin{aligned} S_6 &= cS_5 + (1 - c) Sm_t \\ &= 0.1(6.9) + (1 - 0.1) 5.775 \\ &= 0.69 + (0.9) 5.775 \\ &= 0.69 + 5.1975 \\ &= 5.887 \end{aligned}$$

Similarly, predicted sales for year 7 can be worked out.

$$\begin{aligned} S_7 &= cS_6 + (1 - c) Sm_t \\ &= 0.1 (5.1) + (1 - 0.1) 5.8875 \\ &= 0.51 + (0.9) 5.8875 \\ &= 0.51 + 5.298 \\ &= 5.808 \end{aligned}$$

Since this method involves more mathematical computation, computers can be advantageously used for better accuracy and quick results.

## Unit – II

### **THEORY OF PRODUCTION AND COST ANALYSIS**

#### **PRODUCTION FUNCTION**

**Samuelson** define the production function as “the technical relationship which reveals the maximum amount of output capable of being produced by each and every set of inputs”

**Michael** define production function as “that function which defines the maximum amount of output that can be produced with a given set of inputs”.

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

Mathematically production function can be written as

$$Q = F(L_1, L_2, C, O, T)$$

Where **Q** is the quantity of production

**F** explains the functions, that is, the type of relation between inputs and outputs ,

**L<sub>1</sub>**- land,

**L<sub>2</sub>**, - labour

**C** - capital

**O** - organization

**T** - technology

These inputs have been taken in conventional terms. In reality, material also can be included in a set of inputs.

A manufacturer has to make a choice of the production function by considering his technical knowledge, the process of various factors of production and his efficiency level to manage. He should not only select the factors of production but also should work out the different permutations and combinations which will mean lower cost of inputs for a given level of production.

In case of an agricultural product, increasing the other factors of production can increase the production, but beyond a point, increase output can be had only with increased use of agricultural land, investment in land forms a significant portion of the total cost of production for output, whereas, in the case of the software industry, other factor such as technology , capital management and others become significant. With change in industry and the requirements the production function also needs to be modified to suit to the situation.

#### **Production Function With One Variable Input ( LAW OF VARIABLE PROPORTIONS / LAW OF DIMINISHING RETURNS )**

The laws of returns states that when at least one factor of production is fixed or factor input is fixed and when all other factors are varied, the total output in the initial stages will increase at an increasing rate, and after reaching certain level or output the total output will increase at declining rate. If variable factor inputs are added further to the fixed factor input, the total output may decline. This law is of universal nature and it proved to be true in agriculture and industry also. The law of returns is also called the law of variable proportions or the law of diminishing returns.

## Definition According to G. Stigler

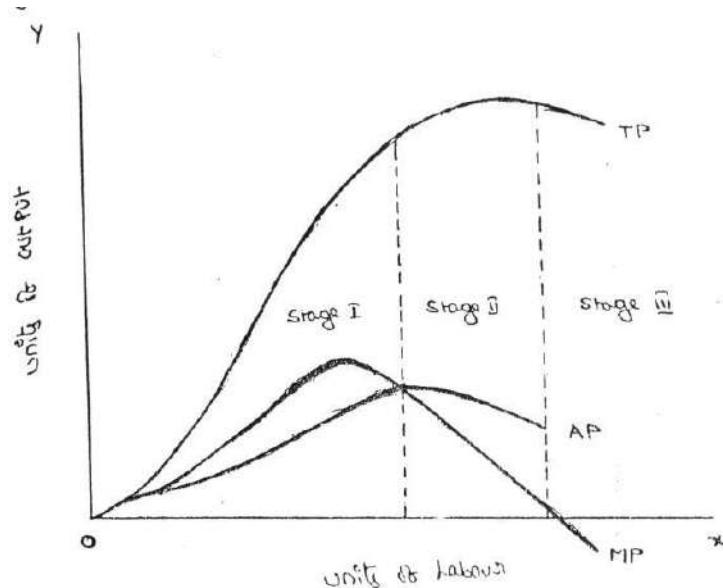
"If equal increments of one input are added, the inputs of other production services being held constant, beyond a certain point the resulting increments of product will decrease i.e. the marginal product will diminish".

## According to F. Benham

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

**Assumptions of the Law:** The law is based upon the following assumptions:

- i) The state of technology remains constant. If there is any improvement in technology, the average and marginal output will not decrease but increase.
- ii) Only one factor of input is made variable and other factors are kept constant. This law does not apply to those cases where the factors must be used in rigidly fixed proportions.
- iii) All units of the variable factors are homogenous.



Units of labour	Total Product (TP)	Marginal product (MP)	Average product (AP)	Stages
0	0	0	0	Stages 1
1	10	10	10	
2	22	12	11	
3	33	11	11	
4	40	7	10	Stages 2
5	45	5	9	
6	48	3	8	
7	48	0	6.85	
8	45	-3	5.62	Stages 3

From the above graph the law of variable proportions operates in three stages. In the first stage, total product increases at an increasing rate. The marginal product in this stage increases at an increasing rate resulting in a greater increase in total product. The average product also increases. This stage continues up to the point where average product is equal to marginal product. The law of increasing returns is in operation at this stage. The law of diminishing returns starts operating from the second stage onwards. At the second stage total product increases only at a diminishing rate. The average product also declines. The second stage comes to an end where total product becomes maximum and marginal product becomes zero. The marginal product becomes negative in the third stage. So the total product also declines. The average product continues to decline.

### **Production Function With Two Variable Inputs And Laws Returns**

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

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

Where C = capital , L = labour,

Normally, both capital and labour are required to produce a product. To some extent, these two inputs can be substituted for each other. Hence the producer may choose any combination of labour and capital that gives him the required number of units of output, for any one combination of labour and capital out of several such combinations. The alternative combinations of labour and capital yielding a given level of output are such that if the use of one factor input is increased , that of another will decrease and vice versa. However, the units of an input foregone to get one unit of the other input changes, depends upon the degree of substitutability between the two input factors, based on the techniques or technology used, the degree of substitutability may vary.

### **ISO – QUANTS ( ISO PRODUCT CURVES)**

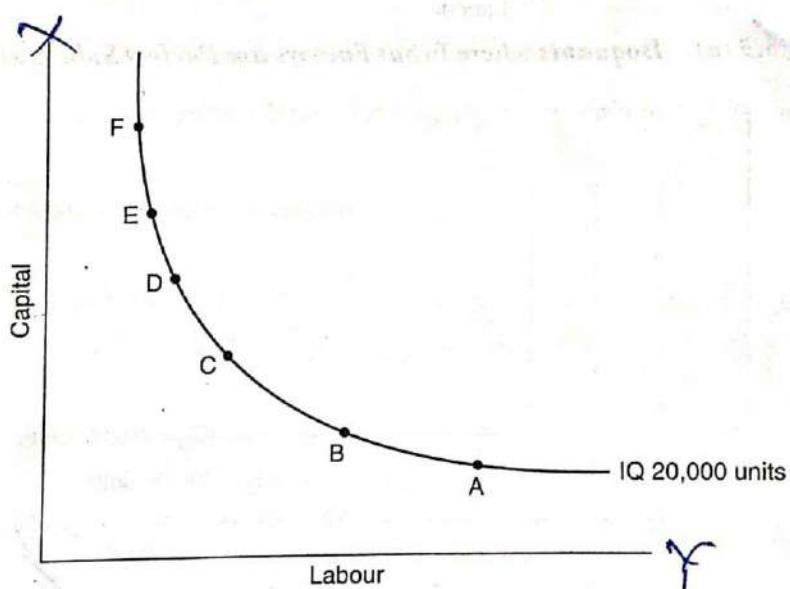
The term Isoquants is derived from the words ‘iso’ and ‘quant’ – ‘Iso’ means equal and ‘quent’ implies quantity. Isoquant therefore, means equal quantity. Isoquants are also called isoproduct curves, an isoquant curve shows various combinations of two input factors such as capital and labour, which yield the same level of output.

As an isoquant curve represents all such combinations which yield equal quantity of output, any or every combination is a good combination for the manufacturer. Since he prefers all these combinations equally , an isoquant curve is also called product indifferent curve.

An isoquant may be explained with the help of an arithmetical example

**Table 5.2 An Isoquant**

Combinations	Capital (Rs. in lakh)	No. of Labourers
A	1	20
B	2	15
C	3	11
D	4	8
E	5	6
F	6	5



**Fig. 5.2 Isoquant Yielding 20,000 Units of Production**

- Table 5.2 shows the different combinations of input factors to yield an output of 20,000 units of output. As the investment goes up, the number of labourers can be reduced. The combination of A shows 1 unit of capital and 20 units of labour to produce say, 20,000 units of output. All the above combinations of inputs can be plotted on a graph, the locus of all the possible combinations of inputs shows up an Isoquant as shown in Fig. 5.2.

### Features of isoquant

**1. downward sloping:** isoquants are downward sloping curves because, if one input increase, the other one reduces. There is no question of increase in both the inputs to yield a given output. A degree of substitution is assumed between the factors of production. In other words, an isoquant cannot be increasing, as increase in both the inputs does not yield same level of output. If it is constant, it means that the output remains constant through the use of one of the factor is increasing, which is not true, isoquant slope from left to right.

**2. Convex to origin:** isoquants are convex to the origin. It is because the input factors are not perfect substitutes. One input 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 proportion, and substitution of one input for the other cannot take place, the isoquant will be L shaped

**3. Do not intersect:** two isoquants do not intersect with each other. It is because, each of these denote a particular level of output. If the manufacturer wants to operate at a higher level of output, he has to switch over to another isoquant with a higher level of output and vice versa.

**4. Do not touch axes:** the isoquant touches neither X-axis nor Y-axis, as both inputs are required to produce a given product.

## ISOCOSTS

Isocost 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. Figure 5.4 presents three downward sloping straight line cost curves (assuming that the input prices are fixed, no quantity discounts are available) each costing Rs. 1.0 lakh, Rs. 1.5 lakh and Rs. 2.0 lakh for the output levels of 20,000, 30,000 and 40,000 units. (The total cost, as represented by each cost curve, is calculated by multiplying the quantity of each input factor with its respective price.) Isocosts farther from the origin, for given input costs, are associated with higher costs. Any change in input prices changes the slope of isocost lines.

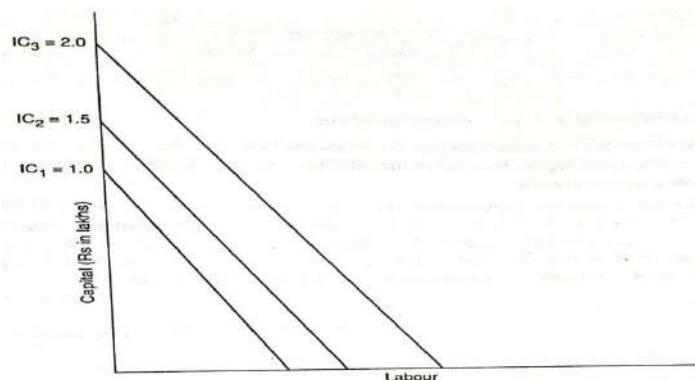


Fig. 5.4 Isocosts Each Representing Different Levels of Total Cost

## MARGINAL RATE OF TECHNICAL SUBSTITUTION

The marginal rate of technical substitution (MRTS) refers to the 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. Table 5.3 presents the ratio of MRTS between the two input factors, say capital and labour. 5 units of decrease in labour are compensated by an increase in 1 unit of capital, resulting in a MRTS of 5:1.

Table 5.3 Ratio of MRTS between Capital and Labour

Combinations	Capital (Rs. in lakh)	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

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

$$= -\frac{\Delta K}{\Delta L}$$

where  $\Delta K$  is change in capital and  $\Delta L$  is change in labour

The substitution of one input for the other continues until the producer reaches the point of  $P$ ,  $Q$  or  $R$  where the MRTS between the inputs is equal to the ratio between the prices of inputs. Thus at the point of equilibrium, lies the *expansion path*.

Expansion path refers to the line representing the least cost combination of inputs  $P$ ,  $Q$ ,  $R$  for different levels of output. Expansion path indicates how the production can be expanded along this path, if the factor prices are given. The expansion path is also called '*scale line*' as it indicates how to adjust the scale of operations as the firm changes its output. The scale line is a ready reckoner to decide on the issues relating to expansion or contraction of output, given the relative prices of inputs.

## Least Cost Combination of Inputs

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 minimises 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 *superimposing* the isocosts on isoproduct curves (Fig. 5.5). It is evident that the producer can, with a total outlay of Rs. 1.5 lakh, reach the highest isoquant curve which is  $IQ_2$ . If he wants to reach  $IQ_3$ , he has to bring additional resources, which is, let us assume, not possible. He cannot compromise with  $IQ_1$ , as it means lower output. There is no other input combination on  $IQ_2$  other than point  $Q$ , which is cheaper than Rs. 1.5 lakh. So the obvious choice for the producer is  $Q$  combination of inputs only on  $IQ_2$ .

The points of tangency  $P$ ,  $Q$  and  $R$  on each of the isoquant curves represent 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.

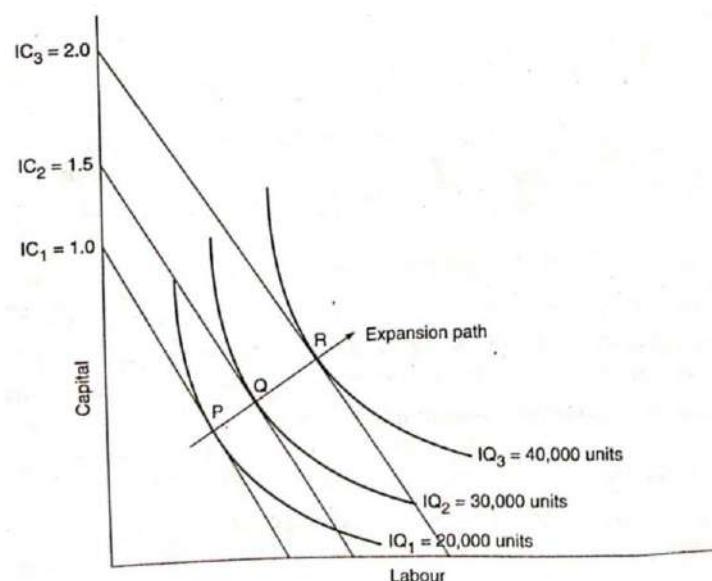


Fig. 5.5 Least Cost Combination of Inputs

## **Cobb-Douglas Production Function**

Cobb and Douglas put forth a production function relating output in American manufacturing industries from 1899 to 1922 to labour and capital inputs. They used the following formula:

$$P = bL^a C^{1-a}$$

Where  $P$  is total output,

$L$  = the index of employment of labour in manufacturing

$C$  = index of fixed capital in manufacturing

The exponents  $a$  and  $1-a$  are the elasticities of production. These measure the percentage response of output to percentage changes in labour and capital respectively.

The function estimated for the USA by Cobb and Douglas is

$$P = 1.01 L^{0.75} C^{0.25}$$

$$R^2 = 0.9409$$

$1.01 L^{0.75} C^{0.25}$   
 $R^2 = 0.9409$

The production function shows that one percent change in labour input, capital remaining the same, is associated with a 0.75 percent change in output. Similarly, one percent change in capital, labour remaining the same, is associated with a 0.25 percent change in output. The coefficient of determination ( $R^2$ ) means that 94 percent of the variations on the dependent variable ( $P$ ) were accounted for by the variations in the independent variables ( $L$  and  $C$ ). It indicates constant returns to scale which means that there are no economies or diseconomies of large scale of production. On an average, large or small scale plants are considered equally profitable in the US manufacturing industry, on the assumption that the average and marginal production costs were constant.

Though Cobb-Douglas production function was based on macro-level study, it has been very useful for interpreting economic results. Later investigations revealed that the sum of the exponents might be slightly larger than unity, which implies decreasing costs. But the difference was so marginal that constant costs would seem to be a safe assumption for all practical purposes.

## **LAW OF RETURNS TO SCALE**

There are three laws of returns governing production function. They are

### **1. Law of increasing returns to scale**

This law states that the volume of output keeps on increasing with every increase in the inputs,. Where a given increase in inputs leads to a more than proportionate increase in the output, the law of increasing returns to scale 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.

### **2. Law of constant returns to scale**

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

### **3.Law of decreasing returns to scale**

Where the proportionate increase in the inputs does not lead 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 of land. If you till the land well with adequate bags of fertilizers and sow good quality seeds, the volume of output increases the following table illustrates further

<b>Capital (in units)</b>	<b>Labor (in units)</b>	<b>% of increase in both inputs</b>	<b>Output (in units)</b>	<b>% of increase in output</b>	<b>Law applicable</b>
1	3	---	---	---	---
2	6	100	120	140	Law of increase returns to scale
4	12	100	240	100	Law of constant returns to scale
8	24	100	360	50	Law of decrease returns to scale

## **ECONOMIES OF SCALE**

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

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

External economies are those benefits, which are shared in by a number of firms or industries when the scale of production in an industry or groups of industries increases. Hence external economies benefit all firms within the industry as the size of the industry expands.

### **INTERNAL ECONOMIES:**

Internal economies may be of the following types.

#### **A).Technical Economies.**

Technical economies arise to a firm from the use of better machines and superior techniques of production. As a result, production increases and per unit cost of production falls. A large firm, which employs costly and superior plant and equipment, enjoys a technical superiority over a small firm. Another technical economy lies in the mechanical advantage of using large machines. The cost of operating large machines is less than that of operating small machine. Moreover a larger firm is able to reduce its per unit cost of production by linking the various processes of production. Technical economies may also be associated when the large firm is

able to utilize all its waste materials for the development of by-products industry. Scope for specialization is also available in a large firm. This increases the productive capacity of the firm and reduces the unit cost of production.

#### **B).Managerial Economies:**

These economies arise due to better and more elaborate management, which only the large size firms can afford. There may be a separate head for manufacturing, assembling, packing, marketing, general administration etc. Each department is under the charge of an expert. Hence the appointment of experts, division of administration into several departments, functional specialization and scientific co-ordination of various works make the management of the firm most efficient.

#### **C).Marketing Economies:**

The large firm reaps marketing or commercial economies in buying its requirements and in selling its final products. The large firm generally has a separate marketing department. It can buy and sell on behalf of the firm, when the market trends are more favorable. In the matter of buying they could enjoy advantages like preferential treatment, transport concessions, cheap credit, prompt delivery and fine relation with dealers. Similarly it sells its products more effectively for a higher margin of profit.

#### **D).Financial Economies:**

The large firm is able to secure the necessary finances either for block capital purposes or for working capital needs more easily and cheaply. It can barrow from the public, banks and other financial institutions at relatively cheaper rates. It is in this way that a large firm reaps financial economies.

#### **E).Risk bearing Economies:**

The large firm produces many commodities and serves wider areas. It is, therefore, able to absorb any shock for its existence. For example, during business depression, the prices fall for every firm. There is also a possibility for market fluctuations in a particular product of the firm. Under such circumstances the risk-bearing economies or survival economies help the bigger firm to survive business crisis.

#### **F).Economies of Research:**

A large firm possesses larger resources and can establish it's own research laboratory and employ trained research workers. The firm may even invent new production techniques for increasing its output and reducing cost.

#### **G).Economies of welfare:**

A large firm can provide better working conditions in-and out-side the factory. Facilities like subsidized canteens, crèches for the infants, recreation room, cheap houses, educational and medical facilities tend to increase the productive efficiency of the workers, which helps in raising production and reducing costs.

### **EXTERNAL ECONOMIES:**

Business firm enjoys a number of external economies, which are discussed below:

#### **A).Economies of Concentration:**

When an industry is concentrated in a particular area, all the member firms reap some common economies like skilled labour, improved means of transport and communications, banking and financial services, supply of power and benefits from subsidiaries. All these facilities tend to lower the unit cost of production of all the firms in the industry.

#### **B).Economies of Information**

The industry can set up an information centre which may publish a journal and pass on information regarding the availability of raw materials, modern machines, export potentialities and provide other information needed by the firms. It will benefit all firms and reduction in their costs.

#### **C).Economies of Welfare:**

An industry is in a better position to provide welfare facilities to the workers. It may get land at concessional rates and procure special facilities from the local bodies for setting up housing colonies for the workers. It may also establish public health care units, educational institutions both general and technical so that a continuous supply of skilled labour is available to the industry. This will help the efficiency of the workers.

#### **D).Economies of Disintegration:**

The firms in an industry may also reap the economies of specialization. When an industry expands, it becomes possible to split up some of the processes which are taken over by specialist firms. For example, in the cotton textile industry, some firms may specialize in manufacturing thread, others in printing, still others in dyeing, some in long cloth, some in dhotis, some in shirting etc. As a result the efficiency of the firms specializing in different fields increases and the unit cost of production falls.

Thus internal economies depend upon the size of the firm and external economies depend upon the size of the industry.

### **DISECONOMIES OF LARGE SCALE PRODUCTION**

Internal and external diseconomies are the limits to large-scale production. It is possible that expansion of a firm's output may lead to rise in costs and thus result diseconomies instead of economies. When a firm expands beyond proper limits, it is beyond the capacity of the manager to manage it efficiently. This is an example of an internal diseconomy. In the same manner, the expansion of an industry may result in diseconomies, which may be called external diseconomies. Employment of additional factors of production becomes less efficient and they are obtained at a higher cost. It is in this way that external diseconomies result as an industry expands.

The major diseconomies of large-scale production are discussed below:

#### **Internal Diseconomies:**

##### **A).Financial Diseconomies:**

For expanding business, the entrepreneur needs finance. But finance may not be easily available in the required amount at the appropriate time. Lack of finance retards the production plans thereby increasing costs of the firm.

### **B).Managerial diseconomies:**

There are difficulties of large-scale management. Supervision becomes a difficult job. Workers do not work efficiently, wastages arise, decision-making becomes difficult, coordination between workers and management disappears and production costs increase.

### **C).Marketing Diseconomies:**

As business is expanded, prices of the factors of production will rise. The cost will therefore rise. Raw materials may not be available in sufficient quantities due to their scarcities. Additional output may depress the price in the market. The demand for the products may fall as a result of changes in tastes and preferences of the people. Hence cost will exceed the revenue.

### **D).Technical Diseconomies:**

There is a limit to the division of labour and splitting down of production processes. The firm may fail to operate its plant to its maximum capacity. As a result cost per unit increases. Internal diseconomies follow.

### **E).Diseconomies of Risk-taking:**

As the scale of production of a firm expands risks also increase with it. Wrong decision by the management may adversely affect production. In large firms are affected by any disaster, natural or human, the economy will be put to strains.

## **EXTERNAL DISECONOMIES:**

When many firm get located at a particular place, the costs of transportation increases due to congestion. The firms have to face considerable delays in getting raw materials and sending finished products to the marketing centers. The localization of industries may lead to scarcity of raw material, shortage of various factors of production like labour and capital, shortage of power, finance and equipments. All such external diseconomies tend to raise cost per unit.

## **COST ANALYSIS**

Profit is the ultimate aim of any business and the long-run prosperity of a firm depends upon its ability to earn sustained profits. Profits are the difference between selling price and cost of production. In general the selling price is not within the control of a firm but many costs are under its control. The firm should therefore aim at controlling and minimizing cost. Since every business decision involves cost consideration, it is necessary to understand the meaning of various concepts for clear business thinking and application of right kind of costs.

## **COST CONCEPTS:**

A managerial economist must have a clear understanding of the different cost concepts for clear business thinking and proper application. The several alternative bases of classifying cost and the relevance of each for different kinds of problems are to be studied. The various relevant concepts of cost are:

## **1.Opportunity costs and outlay costs:**

Out lay cost also known as actual costs obsolete costs are those expends which are actually incurred by the firm these are the payments made for labour, material, plant, building, machinery traveling, transporting etc., These are all those expense item appearing in the books of account, hence based on accounting cost concept.

On the other hand opportunity cost implies the earnings foregone on the next best alternative, has the present option is undertaken. This cost is often measured by assessing the alternative, which has to be scarified if the particular line is followed.

The opportunity cost concept is made use for long-run decisions. This concept is very important in capital expenditure budgeting. This concept is very important in capital expenditure budgeting. The concept is also useful for taking short-run decisions opportunity cost is the cost concept to use when the supply of inputs is strictly limited and when there is an alternative. If there is no alternative, Opportunity cost is zero. The opportunity cost of any action is therefore measured by the value of the most favorable alternative course, which had to be foregoing if that action is taken.

## **2.Explicit and implicit costs:**

Explicit costs are those expenses that involve cash payments. These are the actual or business costs that appear in the books of accounts. These costs include payment of wages and salaries, payment for raw-materials, interest on borrowed capital funds, rent on hired land, Taxes paid etc.

Implicit costs are the costs of the factor units that are owned by the employer himself. These costs are not actually incurred but would have been incurred in the absence of employment of self – owned factors. The two normal implicit costs are depreciation, interest on capital etc. A decision maker must consider implicit costs too to find out appropriate profitability of alternatives.

## **3.Historical and Replacement costs:**

Historical cost is the original cost of an asset. Historical cost valuation shows the cost of an asset as the original price paid for the asset acquired in the past. Historical valuation is the basis for financial accounts.

A replacement cost is the price that would have to be paid currently to replace the same asset. During periods of substantial change in the price level, historical valuation gives a poor projection of the future cost intended for managerial decision. A replacement cost is a relevant cost concept when financial statements have to be adjusted for inflation.

## **4.Short – run and long – run costs:**

Short-run is a period during which the physical capacity of the firm remains fixed. Any increase in output during this period is possible only by using the existing physical capacity more extensively. So short run cost is that which varies with output when the plant and capital equipment in constant.

Long run costs are those, which vary with output when all inputs are variable including plant and capital equipment. Long-run cost analysis helps to take investment decisions.

## **5. Out-of pocket and books costs:**

Out-of pocket costs also known as explicit costs are those costs that involve current cash payment. Book costs also called implicit costs do not require current cash payments. Depreciation, unpaid interest, salary of the owner is examples of book costs.

But the book costs are taken into account in determining the level dividend payable during a period. Both book costs and out-of-pocket costs are considered for all decisions. Book cost is the cost of self-owned factors of production.

## **6. Fixed and variable costs:**

Fixed cost is that cost which remains constant for a certain level of output. It is not affected by the changes in the volume of production. But fixed cost per unit decrease, when the production is increased. Fixed cost includes salaries, Rent, Administrative expenses, depreciations etc.

Variable is that which varies directly with the variation in output. An increase in total output results in an increase in total variable costs and decrease in total output results in a proportionate decline in the total variables costs. The variable cost per unit will be constant. Ex: Raw materials, labour, direct expenses, etc.

## **7. Post and Future costs:**

Post costs also called historical costs are the actual cost incurred and recorded in the book of account these costs are useful only for valuation and not for decision making.

Future costs are costs that are expected to be incurred in the future. They are not actual costs. They are the costs forecasted or estimated with rational methods. Future cost estimate is useful for decision making because decisions are meant for future.

## **8. Traceable and common costs:**

Traceable costs otherwise called direct cost, is one, which can be identified with a product's process or product. Raw material, labour involved in production are examples of traceable cost.

Common costs are the ones that are attributed to a particular process or product. They are incurred collectively for different processes or different types of products. It cannot be directly identified with any particular process or type of product.

## **9. Avoidable and unavoidable costs:**

Avoidable costs are the costs, which can be reduced if the business activities of a concern are curtailed. For example, if some workers can be retrenched with a drop in a product – line, or volume or production the wages of the retrenched workers are escapable costs.

The unavoidable costs are otherwise called sunk costs. There will not be any reduction in this cost even if reduction in business activity is made. For example cost of the ideal machine capacity is unavoidable cost.

## **10. Controllable and uncontrollable costs:**

Controllable costs are ones, which can be regulated by the executive who is in charge of it. The concept of controllability of cost varies with levels of management. Direct expenses like material, labour etc. are controllable costs.

Some costs are not directly identifiable with a process of product. They are apportioned to various processes or products in some proportion. This cost varies with the variation in the basis of allocation and is independent of the actions of the executive of that department. These apportioned costs are called uncontrollable costs.

## **11. Incremental and sunk costs:**

Incremental cost also known as different cost is the additional cost due to a change in the level or nature of business activity. The change may be caused by adding a new product, adding new machinery, replacing a machine by a better one etc.

Sunk costs are those which are not altered by any change – They are the costs incurred in the past. This cost is the result of past decision, and cannot be changed by future decisions. Investments in fixed assets are examples of sunk costs.

## **12. Total, average and marginal costs:**

Total cost is the total cash payment made for the input needed for production. It may be explicit or implicit. It is the sum total of the fixed and variable costs. Average cost is the cost per unit of output. If is obtained by dividing the total cost (TC) by the total quantity produced (Q)

Marginal cost is the additional cost incurred to produce an additional unit of output or it is the cost of the marginal unit produced.

## **13. Accounting and Economics costs:**

Accounting costs are the costs recorded for the purpose of preparing the balance sheet and profit and loss statements to meet the legal, financial and tax purpose of the company. The accounting concept is a historical concept and records what has happened in the past.

Economics concept considers future costs and future revenues, which help future planning, and choice, while the accountant describes what has happened, the economics aims at projecting what will happen.

## **COST-OUTPUT RELATIONSHIP**

A proper understanding of the nature and behavior of costs is a must for regulation and control of cost of production. The cost of production depends on many forces and an understanding of the functional relationship of cost to various forces will help us to take various decisions. Output is an important factor, which influences the cost.

The cost-output relationship plays an important role in determining the optimum level of production. Knowledge of the cost-output relation helps the manager in cost control, profit prediction, pricing, promotion etc. The relation between cost and its determinants is technically described as the cost function.

$$C = f(S, O, P, T \dots)$$

Where;

**C**= Cost (Unit or total cost)

**S**= Size of plant/scale of production

**O**= Output level

**P**= Prices of inputs

**T**= Technology

Considering the period the cost function can be classified as (a) short-run cost function and (b) long-run cost function. In economics theory, the short-run is defined as that period during which the physical capacity of the firm is fixed and the output can be increased only by using the existing capacity allows to bring changes in output by physical capacity of the firm.

### (a)Cost-Output Relation in the short-run:

The cost concepts made use of in the cost behavior are total cost, Average cost, and marginal cost.

Total cost is the actual money spent to produce a particular quantity of output. Total cost is the summation of fixed and variable costs.

$$TC = TFC + TVC$$

Up to a certain level of production total fixed cost i.e., the cost of plant, building, equipment etc, remains fixed. But the total variable cost i.e., the cost of labour, raw materials etc., Vary with the variation in output. Average cost is the total cost per unit. It can be found out as follows.

$$AC = TC/Q$$

The total of average fixed cost ( $TFC/Q$ ) keep coming down as the production is increased and average variable cost ( $TVC/Q$ ) will remain constant at any level of output.

In the short-run there will not be any change in total fixed cost. Hence change in total cost implies change in total variable cost only.

### Cost – output relations

Units of Output Q	Total fixed cost TFC	Total variable cost TVC	Total cost (TFC + TVC)	Average variable cost (TVC/Q)	Average fixed cost (TFC/Q)	Average cost (TC/Q)	Marginal cost MC
0	-	-	60	-	-	-	-
1	60	20	80	20	60	80	20
2	60	36	96	18	30	48	16
3	60	48	108	16	20	36	12
4	60	64	124	16	15	31	16
5	60	90	150	18	12	30	26
6	60	132	192	22	10	32	42

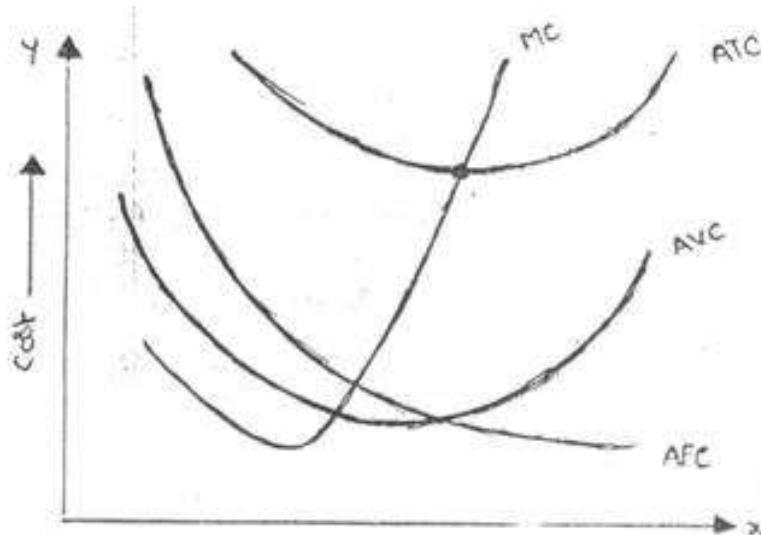
The above table represents the cost-output relation. The table is prepared on the basis of the law of diminishing marginal returns. The fixed cost Rs. 60 May include rent of factory building, interest on capital, salaries of permanently employed staff, insurance etc. The table shows that fixed cost is same at all levels of

output but the average fixed cost, i.e., the fixed cost per unit, falls continuously as the output increases. The expenditure on the variable factors (TVC) is at different rate. If more and more units are produced with a given physical capacity the AVC will fall initially, as per the table declining up to 3rd unit, and being constant up to 4th unit and then rising. It implies that variable factors produce more efficiently near a firm's optimum capacity than at any other levels of output.

And later rises. But the rise in AC is felt only after the start rising. In the table 'AVC' starts rising from the 5th unit onwards whereas the 'AC' starts rising from the 6th unit only so long as 'AVC' declines 'AC' also will decline. 'AFC' continues to fall with an increase in Output. When the rise in 'AVC' is more than the decline in 'AFC', the total cost again begin to rise. Thus there will be a stage where the 'AVC', the total cost again begin to rise thus there will be a stage where the 'AVC' may have started rising, yet the 'AC' is still declining because the rise in 'AVC' is less than the droop in 'AFC'.

Thus the table shows an increasing returns or diminishing cost in the first stage and diminishing returns or diminishing cost in the second stage and followed by diminishing returns or increasing cost in the third stage.

The short-run cost-output relationship can be shown graphically as follows.



In the above graph the "AFC" curve continues to fall as output rises an account of its spread over more and more units Output. But AVC curve (i.e. variable cost per unit) first falls and than rises due to the operation of the law of variable proportions. The behavior of "ATC" curve depends upon the behavior of 'AVC' curve and 'AFC' curve. In the initial stage of production both 'AVC' and 'AFC' decline and hence 'ATC' also decline. But after a certain point 'AVC' starts rising. If the rise in variable cost is less than the decline in fixed cost, ATC will still continue to decline otherwise AC begins to rise. Thus the lower end of 'ATC' curve thus turns up and gives it a U-shape. That is why 'ATC' curve are U-shaped. The lowest point in 'ATC' curve indicates the least- cost combination of inputs. Where the total average cost is the minimum and where the "MC" curve intersects 'AC' curve, It is not be the maximum output level rather it is the point where per unit cost of production will be at its lowest.

The relationship between 'AVC', 'AFC' and 'ATC' can be summarized up as follows:

1. If both AFC and 'AVC' fall, 'ATC' will also fall.
2. When 'AFC' falls and 'AVC' rises

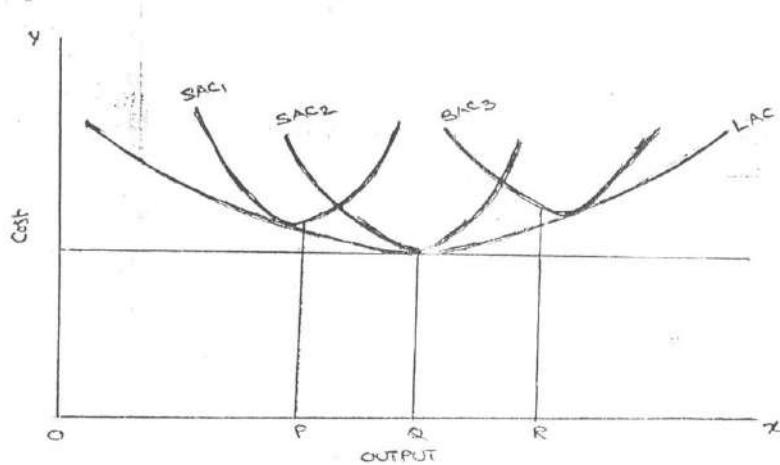
- a. ‘ATC’ will fall where the drop in ‘AFC’ is more than the raise in ‘AVC’.
- b. ‘ATC’ remains constant is the drop in ‘AFC’ = rise in ‘AVC’
- c. ‘ATC’ will rise where the drop in ‘AFC’ is less than the rise in ‘AVC’

### **b. Cost-output Relationship in the long-run:**

Long run is a period, during which all inputs are variable including the one, which are fixed in the short-run. In the long run a firm can change its output according to its demand. Over a long period, the size of the plant can be changed, unwanted buildings can be sold staff can be increased or reduced. The long run enables the firms to expand and scale of their operation by bringing or purchasing larger quantities of all the inputs. Thus in the long run all factors become variable.

The long-run cost-output relations therefore imply the relationship between the total cost and the total output. In the long-run cost-output relationship is influenced by the law of returns to scale.

In the long run a firm has a number of alternatives in regards to the scale of operations. For each scale of production or plant size, the firm has an appropriate short-run average cost curves. The short-run average cost (SAC) curve applies to only one plant whereas the long-run average cost (LAC) curve takes in to consideration many plants.



To draw on ‘LAC’ curve we have to start with a number of ‘SAC’ curves. In the above figure it is assumed that technologically there are only three sizes of plants – small, medium and large, ‘SAC’, for the small size, ‘SAC2’ for the medium size plant and ‘SAC3’ for the large size plant. If the firm wants to produce ‘OP’ units of output, it will choose the smallest plant. For an output beyond ‘OQ’ the firm will be optimum for medium size plant. It does not mean that the OQ production is not possible with small plant. Rather it implies that cost of production will be more with small plant compared to the medium plant.

For an output ‘OR’ the firm will choose the largest plant as the cost of production will be more with medium plant. Thus the firm has a series of ‘SAC’ curves. The ‘LCA’ curve drawn will be tangential to the entire family of ‘SAC’ curves i.e. the ‘LAC’ curve touches each ‘SAC’ curve at one point, and thus it is known as envelope curve. It is also known as planning curve as it serves as guide to the entrepreneur in his planning to expand the production in future. With the help of ‘LAC’ the firm determines the size of plant which yields the lowest average cost of producing a given volume of output it anticipates.

## **BREAK EVEN ANALYSIS**

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

### **Assumptions:**

1. All costs are classified into two – fixed and variable.
2. Fixed costs remain constant at all levels of output.
3. Variable costs vary proportionally with the volume of output.
4. Selling price per unit remains constant in spite of competition or change in the volume of production.
5. There will be no change in operating efficiency.
6. There will be no change in the general price level.
7. Volume of production is the only factor affecting the cost.
8. Volume of sales and volume of production are equal. Hence there is no unsold stock.
9. There is only one product or in the case of multiple products. Sales mix remains constant.

### **Merits:**

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

### **Demerits:**

1. Break-even chart presents only cost volume profits. It ignores other considerations such as capital amount, marketing aspects and effect of government policy etc., which are necessary in decision making.
2. It is assumed that sales, total cost and fixed cost can be represented as straight lines. In actual practice, this may not be so.

3. It assumes that profit is a function of output. This is not always true. The firm may increase the profit without increasing its output.

4. A major draw back of BEC is its inability to handle production and sale of multiple products.

5. It is difficult to handle selling costs such as advertisement and sale promotion in BEC.

6. It ignores economics of scale in production.

7. Fixed costs do not remain constant in the long run.

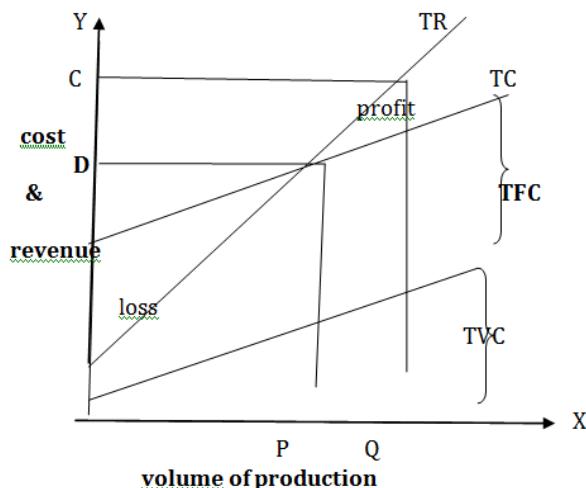
8. Semi-variable costs are completely ignored.

9. It assumes production is equal to sale. It is not always true because generally there may be opening stock.

10. When production increases variable cost per unit may not remain constant but may reduce on account of bulk buying etc.

11. The assumption of static nature of business and economic activities is a well-known defect of BEC.

**Graphical Representation of BEP:**



1. Fixed cost

2. Variable cost

3. Contribution

4. Margin of safety

5. Angle of incidence

6. Profit volume ratio

7. Break-Even-Point

**1.Fixed cost:** Expenses that do not vary with the volume of production are known as fixed expenses. Eg. Manager's salary, rent and taxes, insurance etc. It should be noted that fixed changes are fixed only within a certain range of plant capacity. The concept of fixed overhead is most useful in formulating a price fixing policy. Fixed cost per unit is not fixed.

**2.Variable Cost:** Expenses that vary almost in direct proportion to the volume of production of sales are called variable expenses. Eg. Electric power and fuel, packing materials consumable stores. It should be noted that variable cost per unit is fixed.

**3.Contribution:** Contribution is the difference between sales and variable costs and it contributed towards fixed costs and profit. It helps in sales and pricing policies and measuring the profitability of different proposals. Contribution is a sure test to decide whether a product is worthwhile to be continued among different products.

Contribution = Sales – Variable cost

Contribution = Fixed Cost + Profit.

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

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

Margin of safety can be improved by taking the following steps.

- 1.Increasing production
- 2.Increasing selling price
- 3.Reducing the fixed or the variable costs or both
- 4.Substituting unprofitable product with profitable one.

**5.Angle of incidence:** This is the angle between sales line and total cost line at the Break- even point. It indicates the profit earning capacity of the concern. Large angle of incidence indicates a high rate of profit; a small angle indicates a low rate of earnings. To improve this angle, contribution should be increased either by raising the selling price and/or by reducing variable cost. It also indicates as to what extent the output and sales price can be changed to attain a desired amount of profit.

**6.Profit Volume Ratio** is usually called P. V. ratio. It is one of the most useful ratios for studying the profitability of business. The ratio of contribution to sales is the P/V ratio. It may be expressed in percentage. Therefore, every organization tries to improve the P.V. ratio of each product by reducing the variable cost per unit or by increasing the selling price per unit. The concept of P. V. ratio helps in determining break even-point, a desired amount of profit etc.

The formula is, 
$$\frac{\text{Contribution}}{\text{Sales}} \times 100$$

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

Break-divide

Even-equal

Point-place or position

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

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

$$2. \text{ Break Even point (In Rupees)} = \frac{\text{Fixed expenses}}{\text{Contribution}} \times \text{sales}$$

### **MANAGERIAL SIGNIFICANCE OF BREAK EVEN ANALYSIS:**

The significance of break-even point and Break-even analysis can be understood from the following points –

(i)By finding out the break-even point, the Break-even analysis helps in establishing the point where from the firm can start payment of dividend to its share-holders.

(ii)It evaluates the percentage financial yield from a project, and thereby helps in choice between various alternative projects.

(iii)It helps in determining the optimum level of output, below which it would not be profitable for a firm to produce.

(iv)By using break-even analysis, the firm can determine minimum cost for a given-level of output.

(v)The break-even analysis can be used in finding the selling price which would prove most profitable for the firm.

(vi)It helps in determining the target capacity for a firm to get the advantage of minimum unit cost of production.

(vii)Impact of changes in prices and costs on profits of the firm can also be analysed with the help of break-even techniques.

**Example 1 -**

A firm has fixed cost of Rs 10,000; selling price per unit is Rs 5 and variable cost per unit is Rs 3.

- Determine break-even point in terms of volume and also sales value
- Calculate the margin of safety considering that the actual production is 8000 units.

**Solution**

- Determination of BEP:

$$\text{Break-even point in units} = \frac{\text{Fixed costs}}{\text{Contribution margin per unit}}$$

Where contribution margin per unit = Selling price per unit – Variable cost per unit

$$= 5 - 3$$

$$= 2$$

So,  $\text{BEP in units} = \frac{10,000}{2}$   
 $= 5000 \text{ units.}$

BEP can also be determined in terms of value (in rupees).

The formula is

$$\text{BEP in sales value} = \frac{\text{Fixed costs}}{\text{Contribution margin ratio}}$$

$$\text{where contribution margin ratio} = \frac{\text{Selling price} - \text{Variable cost}}{\text{Selling price}}$$

In the above example, the contribution margin ratio is  $(5 - 3)/5 = (2/5)$

BEP in terms of sales value is calculated as below:

$$= \frac{10,000}{2/5} \\ = \text{Rs } 25,000$$

This can be verified by the formula:

$$\begin{aligned}\text{Total revenue} &= \text{Total cost} \\ &= (\text{No. of units at BEP}) \times (\text{Selling price per unit}) \\ &= 5000 \text{ units} \times \text{Rs } 5 \text{ per unit} \\ &= \text{Rs } 25,000\end{aligned}$$

In other words, at BEP Total revenue = Total cost. This implies that the profit or loss is zero.

This is the reason why BEP is called no profit or no loss point.

BEP can be determined graphically as shown in Fig. 5.1.

- Determination of margin of safety

$$\text{Margin of safety (units)} = \text{Number of units sold} - \text{Break-even point in units}$$

$$\begin{aligned}\text{Margin of safety} &= 8000 - 5000 \\ &= 3000 \text{ units.}\end{aligned}$$

The margin of safety is 3000 units. If there is any unfavourable business conditions such as labour problem, the company can stand firm and continue discussions as long as volume of production does not fall below 5000 units. Once it reaches the BEP, it is advisable for the firm to reach an understanding as it cannot afford any more delay. If production falls below BEP, the firm suffers loss.

### Example 2

A high-tech rail can carry a maximum of 36,000 passengers per annum at a fare of Rs 400. The variable cost per passenger is Rs 150 while the fixed costs are 25,00,000 per year. Find the break-even point in terms of number of passengers and also in terms of fare collections.

#### Solution

(a) Determination of BEP:

$$\text{Break-even point in units} = \frac{\text{Fixed costs}}{\text{Contribution margin per unit}}$$

Where contribution margin per passenger = Fare per passenger - Variable cost per passenger

$$\begin{aligned} &= 400 - 150 \\ &= 250 \end{aligned}$$

$$\begin{aligned} \text{So, BEP in number of passengers} &= \frac{25,00,000}{250} \\ &\approx 10,000 \text{ passengers} \end{aligned}$$

BEP in terms of collections (in rupees).

The formula is

$$\text{BEP in sales value} = \frac{\text{Fixed costs}}{\text{Contribution margin ratio}}$$

$$\text{where contribution margin ratio} = \frac{\text{Selling price} - \text{Variable cost}}{\text{Selling price}}$$

the contribution margin ratio is  $(400 - 150)/400 = (250)/(400)$

BEP in terms of sales value is calculated as below:

$$\begin{aligned} &= \frac{25,00,000}{(250/400)} \\ &= \text{Rs } 40,00,000 \end{aligned}$$

### Example 3

Srikanth Enterprises deals in the supply of hardware parts of computer. The following cost data is available for two successive periods:

	<i>Year I (Rs)</i>	<i>Year II (Rs)</i>
Sales	50,000	1,20,000
Fixed costs	10,000	20,000
Variable cost	30,000	60,000

Determine (a) Break-even point (b) Margin of safety.

### Solution

Here the per unit data is not available. Hence use the formula of P/V ratio to find out BEP.

$$\text{Profit-volume (P/V) ratio} = (\text{Contribution}/\text{Sales}) \times 100$$

Contribution and profit during the year II and I are calculated as below:

	<i>Year I (Rs)</i>	<i>Year II (Rs)</i>
Sales	50,000	1,20,000
Less Variable cost	30,000	60,000
Contribution	<u>20,000</u>	60,000
Less: Fixed costs	10,000	20,000
Net profit	10,000	40,000

	<i>Year I (Rs)</i>	<i>Year II (Rs)</i>
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#### P/V ratio

$$= \frac{\text{Contribution}}{\text{Sales}} \times 100 = \frac{20,000}{50,000} \times 100 = \frac{60,000}{1,20,000} \times 100 = 40\% = 50\%$$

#### BEP

$$= \frac{\text{Fixed costs}}{\text{P/V ratio}} = \frac{10,000}{40\%} = \frac{20,000}{50\%} = \text{Rs. } 25,000 = \text{Rs. } 40,000$$

#### Margin of safety

$$= \frac{\text{Net Profit}}{\text{P/V ratio}} = \frac{10,000}{40\%} = \frac{40,000}{50\%} = 25,000 = 80,000$$

The answers can be verified by using the following formula:

$$\text{Sales} = \text{BEP sales} + \text{Margin of safety}$$

Graphical representation

## UNIT III

### **INTRODUCTION TO MARKETS AND NEW ECONOMIC ENVIRONMENT**

#### **MARKET**

- Market is a place where buyer and seller meet, goods and services are offered for the sale and transfer of ownership occurs.
- A market may be also defined as the demand made by a certain group of potential buyers for a good or service. The former one is a narrow concept and later one, a broader concept.
- Narrow concept Economists describe a market as a collection of buyers and sellers who transact over a particular product or product class (the housing market, the clothing market, the grain market etc.).
- For business purpose we define a market as people or organizations with wants (needs) to satisfy, money to spend, and the willingness to spend it.
- Broadly, market represents the structure and nature of buyers and sellers for a commodity/service and the process by which the price of the commodity or service is established.
- In this sense, we are referring to the structure of competition and the process of price determination for a commodity or service

#### **MARKET STRUCTURES**

- Market structure describes the competitive environment in the market for any good or service.
- Market structure refers to the characteristics of a market that influence the behaviour and performance of firms that sell in the market .

#### **Features of market structure:**

##### **1. The degree of seller concentration:**

This refers to the number of sellers and their market share for a given product or service in the market

##### **2. The degree of buyer concentration:**

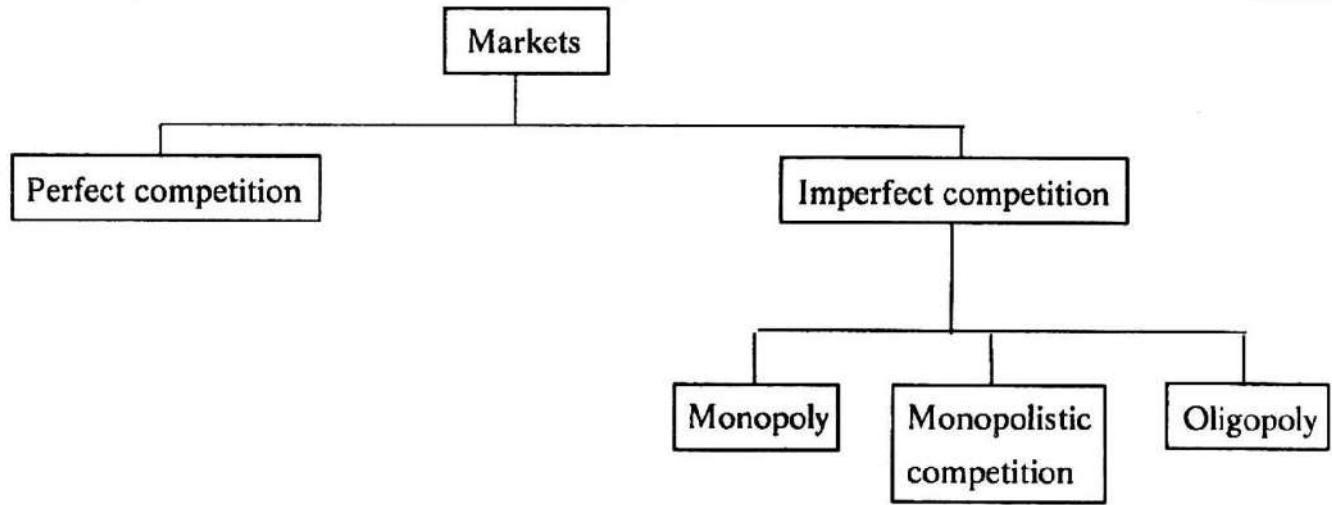
This refers to the number of buyers and their extent of purchases of a given product or services in the market

##### **3. The degree of product differentiation:**

This refers to the extent by which the product of each trader is differentiated from that of one the each other. Product differentiation can take several forms such as varieties, brands, all of which are sufficiently similar to distinguish them, as a group, from other products

##### **4. The conditions of entry into the market**

More often, there could be certain restrictions to enter into or exit from the market. The degree of ease with which one can enter the market or exit from the market – also determines the market structure.



## **PERFECT COMPETITION**

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

### **Characteristics of Perfect Competition**

The following features characterize a perfectly competitive market:

1. **A large number of buyers and sellers:** The number of buyers and sellers is large and the share of each one of them in the market is so small that none has any influence on the market price.
2. **Homogeneous product:** The product of each seller is totally undifferentiated from those of the others. Under perfect competition, the product offered for sale by all the seller must be identical in every respect. The goods offered for sale are perfect substitutes of one another. Buyers have no special preference for the product of a particular seller. No seller can raise the price above the prevailing price or lower the price below the prevailing price.
3. **Free entry and exit:** Any buyer and seller is free to enter or leave the market of the commodity. Under perfect competition, there will be no restriction on the entry and exit of both buyers and sellers. If the existing sellers start making abnormal profits, new sellers should be able to enter the market freely. This will bring down the abnormal profits to the normal level. Similarly, when losses will occur existing sellers may leave the market. However, such free entry or free exit is possible only in the long run, but not in the short-run.
4. **Perfect knowledge:** All buyers and sellers have perfect knowledge about the market for the commodity. Perfect competition implies perfect knowledge on the part of buyers and sellers regarding the market conditions. As a results, no buyer will be prepared to pay a price higher than the prevailing price. Sellers will not charge a price higher or lower than the prevailing price. In this market, advertisement has no scope.
5. **Indifference (No attachment):** No buyer has a preference to buy from a particular seller and no seller to sell to a particular buyer. There is no attachment between the buyers and sellers under perfect competition. Since products of all sellers are identical and their prices are the same a buyer is free to buy the commodity from any seller he likes. He has no special inclination for the product of any

seller as in case of monopolistic competition or oligopoly. Theoretically, perfect competition is irrelevant. In reality, it does not exist.

6. **Non-existence of transport costs:** Perfectly competitive market also assumes the non-existence of transport costs.
7. **Perfect mobility of factors of production:** Factors of production must be in a position to move freely into or out of industry and from one firm to the other. The second perfection mobility of factors of production from one use to another use. This feature ensures that all sellers or firms get equal advantages so far as services of factors of production are concerned. This is essential to enable the firms and industry to achieve equilibrium.
8. **Each firm is a price taker:** an individual firm can alter its rate of production or sales without significantly affecting the market price of the product, a firm in a perfect market cannot influence the market through its own individual actions. It has no alternative other than selling its products at the price prevailing in the market. It cannot sell as much as it wants at its own set price.

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

## PRICE-OUTPUT DETERMINATION IN CASE OF PERFECT COMPETITION

### Short-run

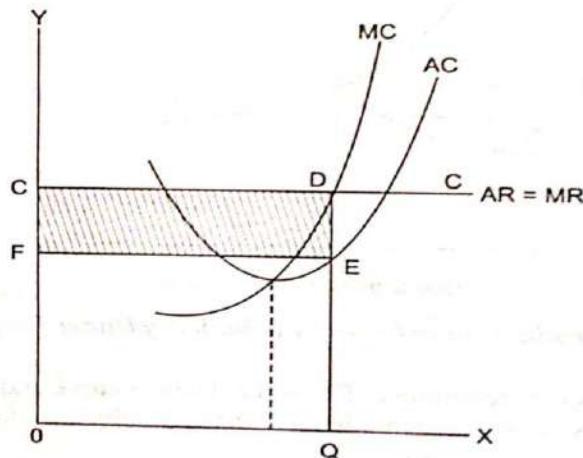
The price and output of the firm are determined, under perfect competition, based on the industry price and its own costs. The industry price has greater say in this process because the firm's own sales are very

small and insignificant. The process of price output determination in case of perfect competition is illustrated in Fig. 8.3.

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

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

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



**Fig. 8.3 Equilibrium Output Determination of a Firm Under Perfect Competition in the Short run**

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

$OC = QD$ , which is the price.

$OF = QE$ , which is the average cost.

$OQ = FE$  which is the equilibrium output.

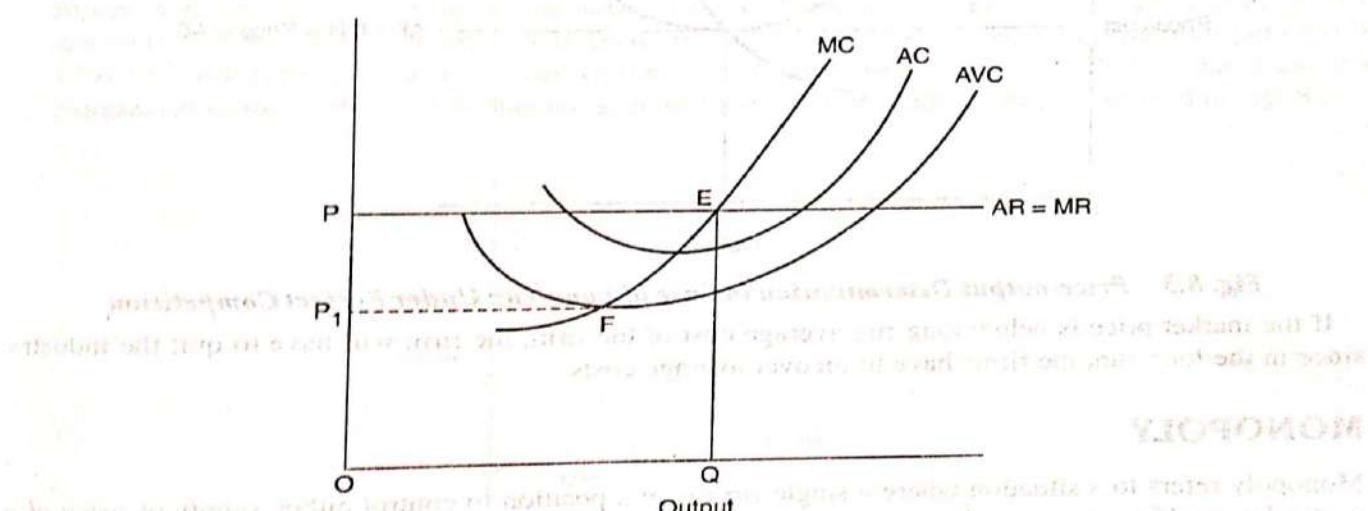
Average profit = Price minus Average cost.

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

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

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

From Fig. 8.4, it can be seen that if the market price is  $P_1$ , or more, the firm is willing to sell. If the price is less than  $P_1$ , the firm refuses to sell, as the price is less than the average variable cost. The firm's supply curve is that portion of the marginal cost curve which begins from point F. Point E refers to the equilibrium point where  $MR = MC$ .

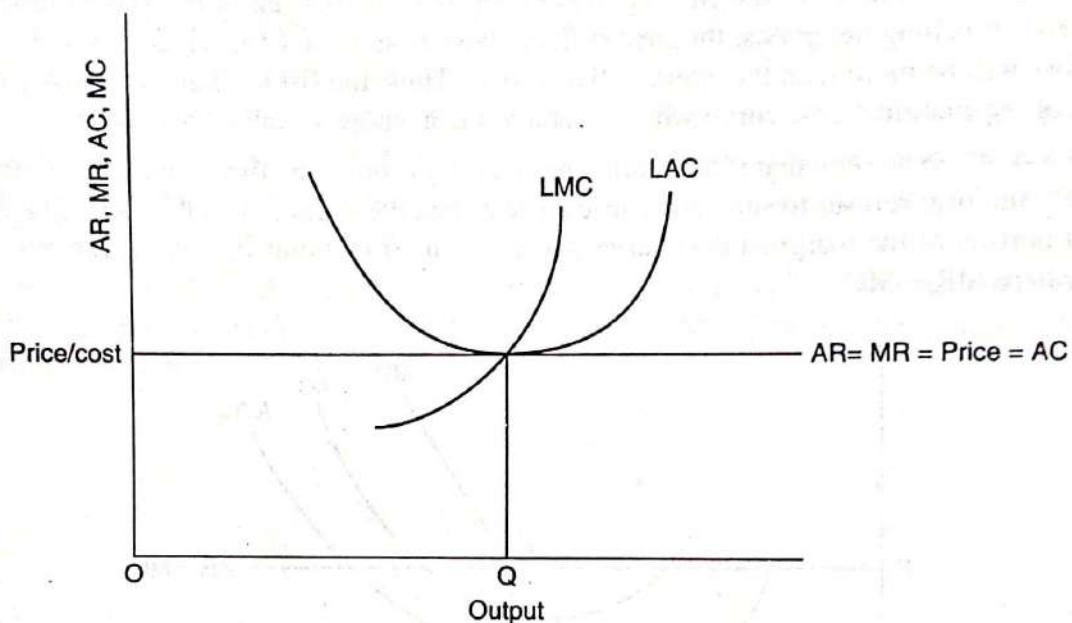


**Fig. 8.4 Firm's Short-run Supply Curve Under Perfect Competition**

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

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

Figure 8.5 shows the long-run equilibrium position of the firm under perfect competition. Two conditions are to be fulfilled in the long-run: (a)  $MR = MC$ , (b)  $AR = AC$ , and  $AC$  must be tangential to  $AR$  at its lowest point.  $QE$  is the price and also the long-run average cost ( $LAC$ ). Long-run marginal cost ( $LMC$ ) curve passes through the minimum point of the long-run average cost curve ( $LAC$ ) at  $E$ , while passing through the marginal revenue curve.  $E$  is the equilibrium point and the firm produces  $OQ$  units of output. It can be noted that normal profits are not visible to the naked eye since normal profits are included in the average cost. Long-run average cost includes the opportunity cost of staying in business.



**Fig. 8.5 Price-output Determination in Case of Long-run Under Perfect Competition**

If the market price is below long-run average cost of the firm, the firm will have to quit the industry since in the long-run, the firms have to recover average costs.

## MONOPOLY

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

### Features of monopoly

The following are the features of monopoly.

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

### Types of Monopoly

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

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

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

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

### PRICING UNDER MONOPOLY

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

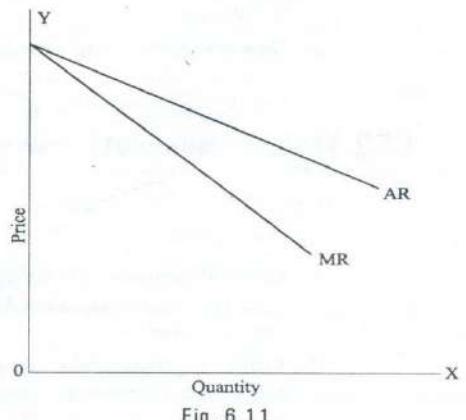


Fig. 6.11

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

### PRICE OUTPUT DETERMINATION (EQUILIBRIUM POINT )

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

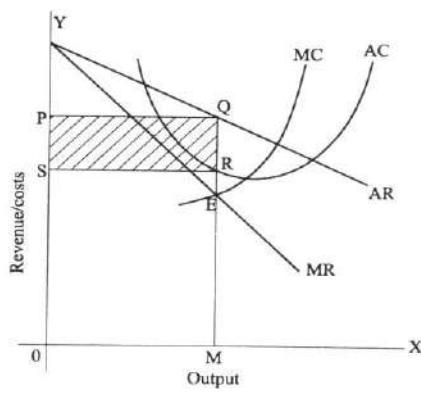


Fig. 6.12

- In the diagram 6.12 the quantity supplied or demanded is shown along X-axis.

- The cost or revenue is shown along Y-axis. AC and MC are the average cost and marginal cost curves respectively.
- AR and MR curves slope downwards from left to right.
- AC and MC are U shaped curves.
- The monopolistic firm attains equilibrium when its marginal cost is equal to marginal revenue ( $MC=MR$ ).
- Under monopoly, the MC curve may cut the MR curve from below or from a side. In the diagram, the above condition is satisfied at point E. At point E,  $MC=MR$ .
- The firm is in equilibrium. The equilibrium output is OM.
- ❖ The above diagram (Average revenue) = MQ or OP
- ❖ Average cost = MR
- ❖ Profit per unit = Average Revenue - Average cost = MQ - MR = QR
- ❖ Total Profit = QR × SR = PQRS
- ❖ The area PQRS represents the maximum profit earned by the monopoly firm.
- ❖ But it is not always possible for a monopolist to earn super-normal profits. If the demand and cost situations are not favorable, the monopolist may realize short run losses.
- ❖ Through the monopolist is a price marker, due to weak demand and high costs; he suffers a loss equal to PABC.
- ❖ If  $AR > AC$  = Abnormal or super normal profits.
- ❖ If  $AR = AC$  = Normal Profit
- ❖ If  $AR < AC$  = Loss
- ❖ In the long run the firm has time to adjust his plant size or to use existing plant so as to maximize profits.

## MONOPOLISTIC COMPETITION

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

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

- 1. Existence of Many firms:** Industry consists of a large number of sellers, each one of whom does not feel dependent upon others. Every firm acts independently without bothering about the reactions of its rivals. The size is so large that an individual firm has only a relatively small part in the total market, so that each firm has very limited control over the price of the product. As the number is relatively large it is difficult for these firms to determine its price- output policies without considering the possible reactions of the rival firms. A monopolistically competitive firm follows an independent price policy.
- 2. Product Differentiation:** Product differentiation means that products are different in some ways, but not altogether so. The products are not identical but at the same time they will not be entirely different from each other. It really means that there are various monopolist firms competing with each other. An example of monopolistic competition and product differentiation is the toothpaste produced by various

firms. The product of each firm is different from that of its rivals in one or more respects. Different toothpastes like Colgate, Close-up, Forehans, Cibaca, etc., provide an example of monopolistic competition. These products are relatively close substitute for each other but not perfect substitutes. Consumers have definite preferences for the particular verities or brands of products offered for sale by various sellers. Advertisement, packing, trademarks, brand names etc. help differentiation of products even if they are physically identical.

- 3. Large Number of Buyers:** There are large number buyers in the market. But the buyers have their own brand preferences. So the sellers are able to exercise a certain degree of monopoly over them. Each seller has to plan various incentive schemes to retain the customers who patronize his products.
- 4. Free Entry and Exist of Firms:** As in the perfect competition, in the monopolistic competition too, there is freedom of entry and exit. That is, there is no barrier as found under monopoly.
- 5. Selling costs:** Since the products are close substitute much effort is needed to retain the existing consumers and to create new demand. So each firm has to spend a lot on selling cost, which includes cost on advertising and other sale promotion activities.
- 6. Imperfect Knowledge:** Imperfect knowledge about the product leads to monopolistic competition. If the buyers are fully aware of the quality of the product they cannot be influenced much by advertisement or other sales promotion techniques. But in the business world we can see that thought the quality of certain products is the same, effective advertisement and sales promotion techniques make certain brands monopolistic. For examples, effective dealer service backed by advertisement-helped popularization of some brands through the quality of almost all the cement available in the market remains the same.

BASIS FOR COMPARISON	PERFECT COMPETITION	MONOPOLISTIC COMPETITION
Meaning	A market structure, where there are many sellers selling similar goods to the buyers, is perfect competition.	Monopolistic Competition is a market structure, where there are numerous sellers, selling close substitute goods to the buyers.
Product	Standardized	Differentiated
Price	Determined by demand and supply forces, for the whole industry.	Every firm offer products to customers at its own price.
Entry and Exit	No barrier	Few barriers
Demand Curve slope	Horizontal, perfectly elastic.	Downward sloping, relatively elastic.
Relation between AR and MR	$AR = MR$	$AR > MR$
Situation	Unrealistic	Realistic

## PRICE-OUTPUT DETERMINATION IN MONOPOLISTIC COMPETITION

It is common that every firm whether operating under perfect market or imperfect market, wants to maximise the profits. It means that the firm under monopolistic competition also will reach equilibrium when its marginal cost equals its marginal revenue ( $MC = MR$ ). The demand curve for the firm in case of monopolistic competition is just *similar* to that of monopolist.

As the products are differentiated, the demand curve has a *downward slope*. In other words, each firm has a limited control over price. These firms are price makers as far as a given group of customers is concerned. The demand for their products and services is relatively inelastic. The degree of elasticity of demand of a firm in monopolistic competition depends upon the extent to which the firm can resort to product differentiation. The greater the ability of the firm to differentiate the product, the less elastic the demand is. The firm's influence to increase the price depends upon the extent to which it can differentiate the product. At lower prices, the firm can sell more. There is no significant variation in the cost functions also.

### Short-run

In the short-run, firms may experience supernormal or normal profits or even losses. When there is a fall in costs or increase in demand, the firms may enjoy supernormal profits. In other words, if the firm satisfies the following two conditions, it may make supernormal profits:

- (a) where marginal cost is equal to marginal revenue ( $MC = MR$ )
- (b) where average revenue is less than average cost ( $AR < AC$ )

The firm may be in losses when the costs rise or demand decreases.

Figure 8.8 reveals that the demand curve is a downward sloping curve because of product differentiation. The cost functions of a firm are not different from those of earlier market situations. At  $F$ , marginal cost ( $MC$ ) is equal to marginal revenue ( $MR$ ), extend  $F$  to point  $B$  on average revenue ( $AR$ ) curve and Point  $Q$  on  $X$  axis.

$OQ$  is the equilibrium output,  $OA = QB$  = Equilibrium price and  $QC$  is the average cost. Average profit = average revenue minus average cost.  $BC$  is the average profit. Profit  $\times$  Quantity = Total profit.

The area  $ABCD$  represents the supernormal profits earned by a firm under monopolistic competition in the short-run.

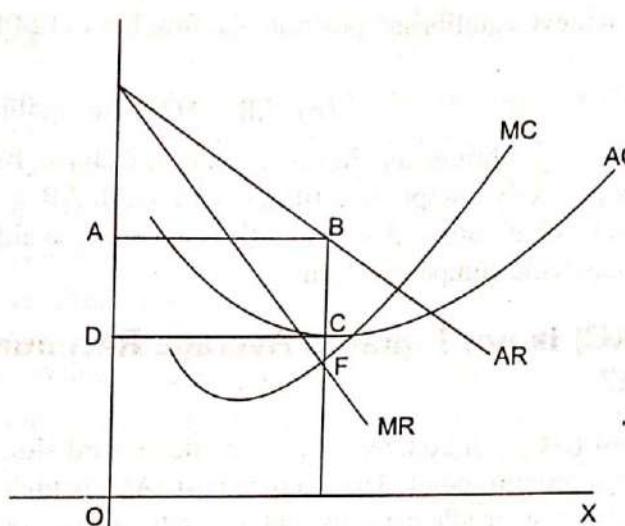


Fig. 8.8 Price-Output Determination in Monopolistic Competition in the Short-run

## Long-run

More and more firms will be entering the market having been attracted by supernormal profits enjoyed by the existing firms in the industry. As a result, competition becomes intensive on one hand, firms will compete with one another for acquiring scarce inputs pushing up the prices of factor inputs. On the other hand, on the entry of several firms the supply in the market will increase, pulling down the selling price of

the products. In order to cope with the competition, the firms will have to increase the budget on advertising. The entry of new firms continue till the supernormal profits of the firms completely get eroded and ultimately firms in the industry will earn only normal profits. Those firms which are not able to earn at least normal profits will get closed. Thus in the long-run, every firm in the monopolistic competitive industry will earn only normal profits, which are just sufficient to stay in the business. It is to be noted that normal profits are part of average costs.

In the long-run, in order to achieve equilibrium position, the firm has to fulfil the following two conditions:

$$(a) MR = MC$$

$$(b) AR = AC \text{ at the equilibrium level of output.}$$

Thus, the firm has to fulfil dual equilibrium conditions as mentioned above. But when compared to long-run equilibrium position of a perfectly competitive firm, even though  $AR = AC$ ,  $AC$  will not be at its minimum point at equilibrium level of output. And also,  $MR$  is not equal to either  $AR$  or  $AC$ ,  $MR$  is well below  $AR$  in the case of monopolistic competitive firm.

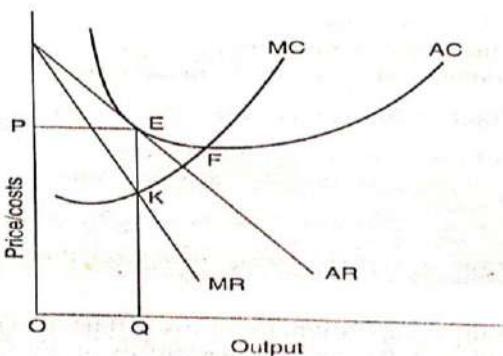


Fig. 8.9 Price-output Determination in Monopolistic Competition in the Long run

## OLIGOPOLY

- The term oligopoly is derived from two Greek words, oligos meaning a few, and pollēn meaning to sell.
- Oligopoly is the form of imperfect competition where there are a few firms in the market, producing either a homogeneous product or producing products, which are close but not perfect substitute of each other.

### Characteristics of Oligopoly

The main features of oligopoly are:

1. **Few Firms:** There are only a few firms in the industry. Each firm contributes a sizeable share of the total market. Any decision taken by one firm influences the actions of other firms in the industry. The various firms in the industry compete with each other.
2. **Interdependence:** As there are only very few firms, any steps taken by one firm to increase sales, by reducing price or by changing product design or by increasing advertisement expenditure will naturally affect the sales of other firms in the industry. An immediate retaliatory action can be anticipated from the other firms.

in the industry every time when one firm takes such a decision. He has to take this into account when he takes decisions. So the decisions of all the firms in the industry are interdependent.

**3. Indeterminate Demand Curve:** The interdependence of the firms makes their demand curve indeterminate. When one firm reduces price other firms also will make a cut in their prices. So the firm cannot be certain about the demand for its product. Thus the demand curve facing an oligopolistic firm loses its definiteness and thus is indeterminate as it constantly changes due to the reactions of the rival firms.

**4. Advertising and selling costs:** Advertising plays a greater role in the oligopoly market when compared to other market systems. According to Prof. William J. Banumol "it is only oligopoly that advertising comes fully into its own". A huge expenditure on advertising and sales promotion techniques is needed both to retain the present market share and to increase it. So Banumol concludes "under oligopoly, advertising can become a life-and-death matter where a firm which fails to keep up with the advertising budget of its competitors may find its customers drifting off to rival products."

**5. Price Rigidity:** In the oligopoly market price remain rigid. If one firm reduced price it is with the intention of attracting the customers of other firms in the industry. In order to retain their consumers they will also reduce price. Thus the pricing decision of one firm results in a loss to all the firms in the industry. If one firm increases price. Other firms will remain silent thereby allowing that firm to lost its customers. Hence, no firm will be ready to change the prevailing price. It causes price rigidity in the oligopoly market.

## PRICING METHODS

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

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

## PRICING OBJECTIVES

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

Generally, the following are the objectives of pricing.

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

## PRCING POLICY

The firm has to formulate its pricing policies, particularly when it deals in multiple products. The pricing policies are intended to bring consistency in the pricing pattern. For instance, to maintain price differentials

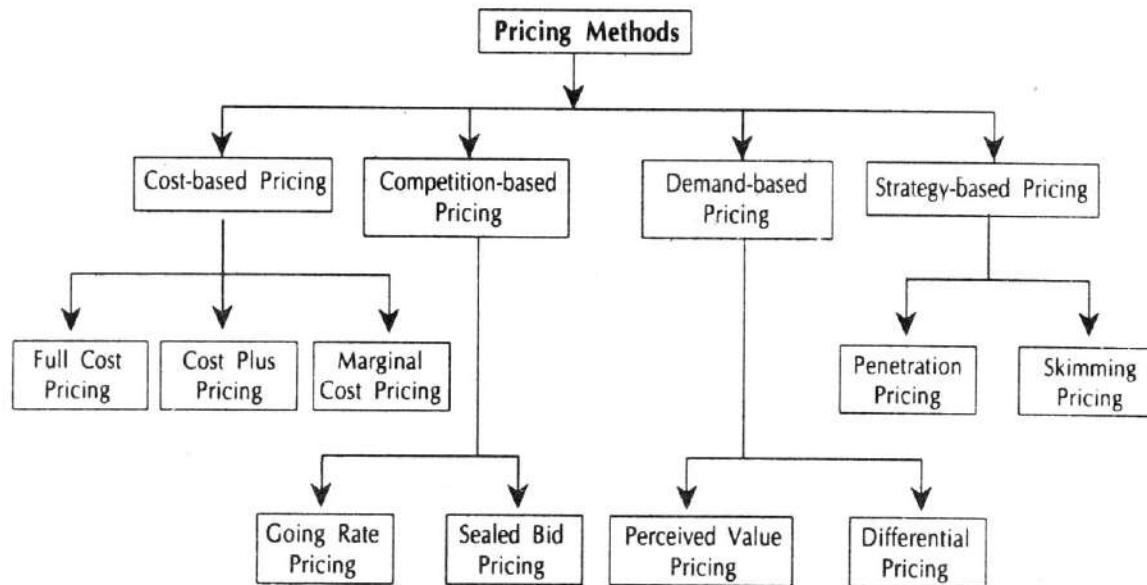
between the deluxe models and basic models and so on. Pricing policy defines how to handle complex issues such as price discrimination and so forth.

## PRICING METHODS

### 1. COST-BASED PRICING METHODS

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

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



### 2. COMPETITION-ORIENTED PRICING

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

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

**GOING RATE PRICING;**-Here the price charged by the firm is in tune with price charged in the industry as a whole. In other words, the prevailing market price at a given point of time is the guiding factor. When one

wants to buy determine the price. Normally the market leaders keep announcing the prevailing prices at a given point of time based on demand and supply positions.

### **3.DEMAND-ORIENTED PRICING**

The higher the demand, the higher can be the price. Cost is not the consideration here. The key to pricing here is the value as perceived by the consumer. This is a relatively modern marketing concept. Today most of the organizations consider favorably such proposals where there is possibility to charge higher prices on their products and services, even though they call for higher investments and latest technology.

Demand-oriented pricing can take two forms: (a) Differential pricing also called price discrimination, (b) perceived value pricing.

Demand-oriented pricing can take two forms: (a) Differential pricing also called price discrimination, (b) perceived value pricing.

#### **PRICE DISCRIMINATION:-**

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

The objects of price discrimination are to

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

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

### **4.STRATEGY-BASED PRICING**

#### **MARKET SKIMMING:-**

When the product is introduced for the first time in the market, the company follows this method. Under this method, the company fixes a very high price for the product. The main idea is to charge the customer maximum possible. This strategy is mostly found in case of technology products. When Sony introduces a particular TV model, it fixes a very high price. When new series of Pentium is released into market, it is priced very high. Initially, all cannot afford except a very few. As the time passes by, the price comes down and more people can afford to buy except a very few. This method can be followed only when (i)

the demand for the product is inelastic,(ii) there is no threat from competitors,(iii) a high price is coupled with high technology or quality.

### **MARKET PENETRATION:-**

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

### **TWO-PART PRICING;-**

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

### **BLOCK PRICING;-**

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

### **COMMODITY BUNDLING;-**

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

### **PEAK LOAD PRICING;-**

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

### **CROSS SUBSIDISATION;-**

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

## **TRANSFER PRICING:-**

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

## **LOSS LEADER PRICING**

Loss leader pricing is an aggressive pricing strategy. Here, the seller offers goods and services below the cost to attract the customers.

Offering several free copies of magazine at the time of its launching or inviting all known contacts for a free lunch or dinner for a day or two at the time of the inauguration of hotel or mess or any other introduction offer are few examples

## **PREDATORY PRICING**

Here the products and services are offered at such a low price to drive competition out of the market or creating absolute barriers for every one else to enter. No one can afford to survive in the market if they cannot sustain equal or lower prices without losing money. Chinese products of different quality and prices seen every corner in the world today reflect as an example for this strategy.

## **PSYCHOLOGICAL PRICING**

Offering products or services at a price such as Rs.49 or Rs.499 is popularly called as psychological pricing

## **FLAT RATE PRICING**

Where the price is charged at a flat rate or single fixed rate for a particular product or service irrespective of usage, flat rate pricing is said to exist.

## BUSINESS AND NEW ECONOMIC ENVIRONMENT

### CHARACTERISTIC FEATURES OF BUSINESS / FACTORS AFFECTING THE CHOICE OF FORM OF INDUSTRIAL / BUSINESS ORGANISATION

- 1. Easy to start and easy to close:** The form of business organization should be such that it should be easy to close. There should not be hassles or long procedures in the process of setting up business or closing the same.
- 2. Division of labour:** There should be possibility to divide the work among the available owners.
- 3. Large amount of resources:** Large volume of business requires large volume of resources. Some forms of business organization do not permit to raise larger resources. Select the one which permits to mobilize the large resources.
- 4. Liability:** The liability of the owners should be limited to the extent of money invested in business. It is better if their personal properties are not brought into business to make up the losses of the business.
- 5. 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.
- 6. Transfer of ownership:** There should be simple procedures to transfer the ownership to the next legal heir.
- 7. Ownership, Management and control:** If ownership, management and control are in the hands of one or a small group of persons, communication will be effective and coordination will be easier. Where ownership, management and control are widely distributed, it calls for a high degree of professional's skills to monitor the performance of the business.
- 8. Continuity:** The business should continue forever and ever irrespective of the uncertainties in future.
- 9. Quick decision-making:** Select such a form of business organization, which permits you to take decisions quickly and promptly. Delay in decisions may invalidate the relevance of the decisions.
- 10. Personal contact with customer:** Most of the times, customers give us clues to improve business. So choose such a form, which keeps you close to the customers.
- 11. Flexibility:** In times of rough weather, there should be enough flexibility to shift from one business to the other. The lesser the funds committed in a particular business, the better it is.
- 12. Taxation:** More profit means more tax. Choose such a form, which permits to pay low tax.

## **SOLE PROPRIETORSHIP:**

- The sole trader is the simplest, oldest and natural form of business organization. It is also called sole proprietorship.
- Sole' means one. 'Sole trader' implies that there is only one trader who is the owner of the business.
- It is a one-man form of organization wherein the trader assumes all the risk of ownership carrying out the business with his own capital, skill and intelligence.
- He is the boss for himself. He has total operational freedom. He is the owner, Manager and controller. He has total freedom and flexibility. Full control lies with him. He can take his own decisions. He can choose or drop a particular product or business based on its merits. He need not discuss this with anybody. He is responsible for himself.
- This form of organization is popular all over the world. Restaurants, Supermarkets, pan shops, medical shops, hosiery shops etc.

### **Features of sole proprietorship**

- It is easy to start a business under this form and also easy to close.
- He introduces his own capital. Sometimes, he may borrow, if necessary
- He enjoys all the profits and in case of loss, he lone suffers.
- He has unlimited liability which implies that his liability extends to his personal properties in case of loss.
- He has a high degree of flexibility to shift from one business to the other.
- Business secretes can be guarded well
- There is no continuity. The business comes to a close with the death, illness or insanity of the sole trader. Unless, the legal heirs show interest to continue the business, the business cannot be restored.
- He has total operational freedom. He is the owner, manager and controller.
- He can be directly in touch with the customers.
- He can take decisions very fast and implement them promptly.
- Rates of tax, for example, income tax and so on are comparatively very low

### **Advantages of sole proprietorship**

- 1.Easy to start and easy to close:** Formation of a sole trader from of organization is relatively easy even closing the business is easy.
- 2.Personal contact with customers directly:** Based on the tastes and preferences of the customers the stocks can be maintained.
- 3.Prompt decision-making:** To improve the quality of services to the customers, he can take any decision and implement the same promptly. He is the boss and he is responsible for his business Decisions relating to growth or expansion can be made promptly.
- 4.High degree of flexibility:** Based on the profitability, the trader can decide to continue or change the business, if need be.
- 5.Secrecy:** Business secrets can well be maintained because there is only one trader.
- 6.Low rate of taxation:** The rate of income tax for sole traders is relatively very low.

**7.Direct motivation:** If there are profits, all the profits belong to the trader himself. In other words. If he works more hard, he will get more profits. This is the direct motivating factor. At the same time, if he does not take active interest, he may stand to lose badly also.

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

**9.Minimum interference from government:** Except in matters relating to public interest, government does not interfere in the business matters of the sole trader. The sole trader is free to fix price for his products/services if he enjoys monopoly market.

**10.Transferability:** The legal heirs of the sole trader may take the possession of the business.

### **Disadvantages of the sole proprietor**

**1.Unlimited liability:** The liability of the sole trader is unlimited. It means that the sole trader has to bring his personal property to clear off the loans of his business. From the legal point of view, he is not different from his business.

**2.Limited amounts of capital:** The resources a sole trader can mobilize cannot be very large and hence this naturally sets a limit for the scale of operations.

**3.No division of labour:** All the work related to different functions such as marketing, production, finance, labour and so on has to be taken care of by the sole trader himself. There is nobody else to take his burden. Family members and relatives cannot show as much interest as the trader takes.

**4.Uncertainty:** There is no continuity in the duration of the business. On the death, insanity or insolvency the business may come to an end.

**5.Inadequate for growth and expansion:** This form is suitable for only small size, one- man-show type of organizations. This may not really work out for growing and expanding organizations.

**6.Lack of specialization:** The services of specialists such as accountants, market researchers, consultants and so on, are not within the reach of most of the sole traders.

**7.More competition:** Because it is easy to set up a small business, there is a high degree of competition among the small businessmen and a few who are good in taking care of customer requirements along can service.

**8.Low bargaining power:** The sole trader is 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 or borrowing loans from the finance houses or banks.

## **PARTNERSHIP**

- Partnership is an improved form of sole trader in certain respects.
- Where there are like-minded persons with resources, they can come together to do the business and share the profits/losses of the business in an agreed ratio.
- Persons who have entered into such an agreement are individually called ‘partners’ and collectively called ‘firm’.
- The relationship among partners is called a partnership.
- Indian Partnership Act, 1932 defines partnership as the relationship between two or more persons who agree to share the profits of the business carried on by all or any one of them acting for all.

## **FEATURES OF PARTNERSHIP**

- 1.Relationship:** Partnership is a relationship among persons. It is relationship resulting out of an agreement.
- 2.Two or more persons:** There should be two or more number of persons.
- 3.There should be a business:** Business should be conducted.
- 4.Agreement:** Persons should agree to share the profits/losses of the business
- 5.Carried on by all or any one of them acting for all:** The business can be carried on by all or any one of the persons acting for all. This means that the business can be carried on by one person who is the agent for all other persons. Every partner is both an agent and a principal. Agent for other partners and principal for himself. All the partners are agents and the ‘partnership’ is their principal.
- 6.Unlimited liability:** The liability of the partners is unlimited. The partnership and partners, in the eye of law, and not different but one and the same. Hence, the partners have to bring their personal assets to clear the losses of the firm, if any.
- 7.Number of partners:** According to the Indian Partnership Act, the minimum number of partners should be two and the maximum number if restricted, as given below:
  - 10 partners in case of banking business 20 in case of non-banking business
  - Division of labour: Because there are more than two persons, the work can be divided among the partners based on their aptitude.
- 9.Personal contact with customers:** The partners can continuously be in touch with the customers to monitor their requirements.
- 10.Flexibility:** All the partners are likeminded persons and hence they can take any decision relating to business.

## **PARTNERSHIP DEED**

The written agreement among the partners is called ‘the partnership deed’. It contains the terms and conditions governing the working of partnership.

The following are contents of the partnership deed.

- 1.Names and addresses of the firm and partners
- 2.Nature of the business proposed
- 3.Duration
- 4.Amount of capital of the partnership and the ratio for contribution by each of the partners.
- 5.Their profit sharing ration (this is used for sharing losses also)
- 6.Rate of interest charged on capital contributed, loans taken from the partnership and the amounts drawn, if any, by the partners from their respective capital balances.
- 7.The amount of salary or commission payable to any partner
- 8.Procedure to value good will of the firm at the time of admission of a new partner, retirement or death of a partner
- 9.Allocation of responsibilities of the partners in the firm

10. Procedure for dissolution of the firm
11. Name of the arbitrator to whom the disputes, if any, can be referred to for settlement.
12. Special rights, obligations and liabilities of partners(s), if any.

## KIND OF PARTNERS

- 1. Active Partner:** Active partner takes active part in the affairs of the partnership. He is also called working partner.
- 2. Sleeping Partner:** Sleeping partner contributes to capital but does not take part in the affairs of the partnership.
- 3. Nominal Partner:** Nominal partner is partner just for namesake. He neither contributes to capital nor takes part in the affairs of business. Normally, the nominal partners are those who have good business connections, and are well placed in the society.
- 4. Partner by Estoppels:** Estoppels means behavior or conduct. Partner by estoppels gives an impression to outsiders that he is the partner in the firm. In fact he neither contributes to capital, nor takes any role in the affairs of the partnership.
- 5. Partner by holding out:** If partners declare a particular person (having social status) as partner and this person does not contradict even after he comes to know such declaration, he is called a partner by holding out and he is liable for the claims of third parties. However, the third parties should prove they entered into contract with the firm in the belief that he is the partner of the firm. Such a person is called partner by holding out.
- 6. Minor Partner:** Minor has a special status in the partnership. A minor can be admitted for the benefits of the firm. A minor is entitled to his share of profits of the firm. The liability of a minor partner is limited to the extent of his contribution of the capital of the firm.

## Advantages Of Partnership

- 1. Easy to form:** Once there is a group of like-minded persons and good business proposal, it is easy to start and register a partnership.
- 2. Availability of larger amount of capital:** More amount of capital can be raised from more number of partners.
- 3. Division of labour:** The different partners come with varied backgrounds and skills. This facilitates division of labour.
- 4. Flexibility:** The partners are free to change their decisions, add or drop a particular product or start a new business or close the present one and so on.
- 5. Personal contact with customers:** There is scope to keep close monitoring with customers requirements by keeping one of the partners in charge of sales and marketing. Necessary changes can be initiated based on the merits of the proposals from the customers.
- 6. Quick decisions and prompt action:** If there is consensus among partners, it is enough to implement any decision and initiate prompt action. Sometimes, it may take more time for the partners on strategic issues to reach consensus.

**7.The positive impact of unlimited liability:** Every partner is always alert about his impending danger of unlimited liability. Hence he tries to do his best to bring profits for the partnership firm by making good use of all his contacts.

#### **Disadvantages of partnership:**

**1.Formation of partnership is difficult:** Only like-minded persons can start a partnership. It is sarcastically said, ' it is easy to find a life partner, but not a business partner'.

**2.Liability:** The partners have joint and several liabilities beside unlimited liability. Joint and several liability puts additional burden on the partners, which means that even the personal properties of the partner or partners can be attached. Even when all but one partner become insolvent, the solvent partner has to bear the entire burden of business loss.

**3.Lack of harmony or cohesiveness:** It is likely that partners may not, most often work as a group with cohesiveness. This result in mutual conflicts, an attitude of suspicion and crisis of confidence. Lack of harmony results in delay in decisions and paralyses the entire operations.

**4.Limited growth:** The resources when compared to sole trader, a partnership may raise little more. But when compare to the other forms such as a company, resources raised in this form of organization are limited. Added to this, there is a restriction on the maximum number of partners.

**5.Instability:** The partnership form is known for its instability. The firm may be dissolved on death, insolvency or insanity of any of the partners.

**6.Lack of Public confidence:** Public and even the financial institutions look at the unregistered firm with a suspicious eye. Though registration of the firm under the Indian Partnership Act is a solution of such problem, this cannot revive public confidence into this form of organization overnight. The partnership can create confidence in other only with their performance.

#### **JOINT STOCK COMPANY**

- The joint stock company emerges from the limitations of partnership such as joint and several liability, unlimited liability, limited resources and uncertain duration and so on.
- Normally, to take part in a business, it may need large money and we cannot foretell the fate of business.
- It is not literally possible to get into business with little money.
- Against this background, it is interesting to study the functioning of a joint stock company.
- The main principle of the joint stock company from is to provide opportunity to take part in business with a low investment as possible say Rs.1000.
- Joint Stock Company has been a boon for investors with moderate funds to invest.

#### **COMPANY DEFINITION**

Lord justice Lindley explained the concept of the joint stock company from 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.

## **Features of company / Joint stock company**

- 1. Artificial person:** The Company has no form or shape. It is an artificial person created by law. It is intangible, invisible and existing only, in the eyes of law.
- 2. Separate legal existence:** it has an independence existence, it separate from its members. It can acquire the assets. It can borrow for the company. It can sue other if they are in default in payment of dues, breach of contract with it, if any. Similarly, outsiders for any claim can sue it. A shareholder is not liable for the acts of the company. Similarly, the shareholders cannot bind the company by their acts.
- 3. Voluntary association of persons:** The Company is an association of voluntary association of persons who want to carry on business for profit. To carry on business, they need capital. So they invest in the share capital of the company.
- 4. Limited Liability:** The shareholders have limited liability i.e., liability limited to the face value of the shares held by him. In other words, the liability of a shareholder is restricted to the extent of his contribution to the share capital of the company. The shareholder need not pay anything, even in times of loss for the company, other than his contribution to the share capital.
- 5. Capital is divided into shares:** The total capital is divided into a certain number of units. Each unit is called a share. The price of each share is priced so low that every investor would like to invest in the company. The companies promoted by promoters of good standing (i.e., known for their reputation in terms of reliability character and dynamism) are likely to attract huge resources.
- 6. Transferability of shares:** In the company form of organization, the shares can be transferred from one person to the other. A shareholder of a public company can sell his holding of shares at his will. However, the shares of a private company cannot be transferred. A private company restricts the transferability of the shares.
- 7. Common Seal:** As the company is an artificial person created by law has no physical form, it cannot sign its name on a paper; so, it has a common seal on which its name is engraved. The common seal should affix every document or contract; otherwise the company is not bound by such a document or contract.
- 8. Perpetual succession:** ‘Members may come and members may go, but the company continues for ever and ever’ A. company has uninterrupted existence because of the right given to the shareholders to transfer the shares.
- 9. Ownership and Management separated:** The shareholders are spread over the length and breadth of the country, and sometimes, they are from different parts of the world. To facilitate administration, the shareholders elect some among themselves or the promoters of the company as directors to a Board, which looks after the management of the business. The Board recruits the managers and employees at different levels in the management. Thus the management is separated from the owners.
- 10. Winding up:** Winding up refers to the putting an end to the company. Because law creates it, only law can put an end to it in special circumstances such as representation from creditors of financial institutions, or shareholders against the company that their interests are not safeguarded. The company is not affected by the death or insolvency of any of its members.
- 11. The name of the company ends with ‘limited’:** it is necessary that the name of the company ends with limited (Ltd.) to give an indication to the outsiders that they are dealing with the company with limited liability and they should be careful about the liability aspect of their transactions with the company.

## **Formation of Joint Stock Company**

There are two stages in the formation of a joint stock company. They are:

- (a) To obtain Certificates of Incorporation
- (b) To obtain certificate of commencement of Business

**Certificate of Incorporation:** The certificate of Incorporation is just like a ‘date of birth’ certificate. It certifies that a company with such and such a name is born on a particular day.

**Certificate of commencement of Business:** A private company need not obtain the certificate of commencement of business. It can start its commercial operations immediately after obtaining the certificate of Incorporation.

The persons who conceive the idea of starting a company and who organize the necessary initial resources are called promoters. The vision of the promoters forms the backbone for the company in the future to reckon with.

The promoters have to file the following documents, along with necessary fee, with a registrar of joint stock companies to obtain certificate of incorporation:

**(a)Memorandum of Association:** The Memorandum of Association is also called the charter of the company. It outlines the relations of the company with the outsiders. If furnishes all its details in six clause such as (ii) Name clause (II) situation clause

(iii) objects clause (iv) Capital clause and (vi) subscription clause duly executed by its subscribers.

**(b)Articles of association:** Articles of Association furnishes the byelaws or internal rules government the internal conduct of the company.

(c)The list of names and address of the proposed directors and their willingness, in writing to act as such, in case of registration of a public company.

(d)A statutory declaration that all the legal requirements have been fulfilled. The declaration has to be duly signed by any one of the following: Company secretary in whole practice, the proposed director, legal solicitor, chartered accountant in whole time practice or advocate of High court.

The registrar of joint stock companies peruses and verifies whether all these documents are in order or not. If he is satisfied with the information furnished, he will register the documents and then issue a certificate of incorporation, if it is private company, it can start its business operation immediately after obtaining certificate of incorporation.

### **( c ) Prospectus:**

A Prospectus is defined as a ‘ notice, circular , advertisement or any documents inviting offers from the public for the subscription or purchase of any shares in or debentures of the body corporate’

## **Advantages of joint stock company**

**1.Mobilization of larger resources:** A joint stock company provides opportunity for the investors to invest, even small sums, in the capital of large companies. The facilities rising of larger resources.

**2.Separate legal entity:** The Company has separate legal entity. It is registered under Indian Companies Act, 1956.

**3.Limited liability:** The shareholder has limited liability in respect of the shares held by him. In no case, does his liability exceed more than the face value of the shares allotted to him.

**4.Transferability of shares:** The shares can be transferred to others. However, the private company shares cannot be transferred.

**5.Liquidity of investments:** By providing the transferability of shares, shares can be converted into cash.

**6.Inculcates the habit of savings and investments:** Because the share face value is very low, this promotes the habit of saving among the common man and mobilizes the same towards investments in the company.

**7.Democracy in management:** the shareholders elect the directors in a democratic way in the general body meetings. The shareholders are free to make any proposals, question the practice of the management, suggest the possible remedial measures, as they perceive, The directors respond to the issue raised by the shareholders and have to justify their actions.

**8.Economics of large scale production:** Since the production is in the scale with large funds at

**9.Continued existence:** The Company has perpetual succession. It has no natural end. It continues forever and ever unless law put an end to it.

**10.Institutional confidence:** Financial Institutions prefer to deal with companies in view of their professionalism and financial strengths.

**11.Professional management:** With the larger funds at its disposal, the Board of Directors recruits competent and professional managers to handle the affairs of the company in a professional manner.

**12.Growth and Expansion:** With large resources and professional management, the company can earn good returns on its operations, build good amount of reserves and further consider the proposals for growth and expansion.

### **Disadvantages of joint stock company**

**1.Formation of company is a long drawn procedure:** Promoting a joint stock company involves a long drawn procedure. It is expensive and involves large number of legal formalities.

**2.High degree of government interference:** The government brings out a number of rules and regulations governing the internal conduct of the operations of a company such as meetings, voting, audit and so on, and any violation of these rules results into statutory lapses, punishable under the companies act.

**3.Inordinate delays in decision-making:** As the size of the organization grows, the number of levels in organization also increases in the name of specialization. The more the number of levels, the more is the delay in decision-making. Sometimes, so-called professionals do not respond to the urgencies as required. It promotes delay in administration, which is referred to ‘red tape and bureaucracy’.

**4.Lack or initiative:** In most of the cases, the employees of the company at different levels show slack in their personal initiative with the result, the opportunities once missed do not recur and the company loses the revenue.

**5.Lack of responsibility and commitment:** In some cases, the managers at different levels are afraid to take risk and more worried about their jobs rather than the huge funds invested in the capital of the company lose the revenue.

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managers do not show up willingness to take responsibility, they cannot be considered as committed. They will not be able to handle the business risks.

## COOPERATIVE SOCIETIES

The industrial revolution created several imbalances in the society. The gap between the haves and the have-nots increased substantially. The rich exploited the have-nots in terms of long hours of work, lower wages, higher prices and bad service conditions. The working class and weaker sections suffered so badly that they were compelled to think of an organised action for mutual help in order to better their economic conditions.

This took the shape of a cooperative movement throughout the world. The philosophy of the cooperative movement was to improve their economic conditions through collective efforts. As a part of the cooperative movement, cooperative societies were organised for farmers, weavers, traders, consumers, and such others. The cooperative movement in India is more than a hundred years old. The Cooperative Societies Act, 1904 provided a legal basis for the formation of cooperative credit societies in villages and in urban areas for granting loans to their respective members.

### Cooperative Society Defined

In the words of International Labour Organisation (ILO), a cooperative society is '*an association of persons usually of limited means who have voluntarily joined together to achieve a common economic end, through the formation of a democratically controlled business organisation, making equitable contribution to be capital required and accepting a fair share of the risks and benefits of the undertaking*'.

Today, we have innumerable number of cooperative societies in every walk of life such as cooperative credit societies, consumers' cooperative societies, industrial cooperatives, marketing cooperatives, co-operative farming societies and cooperative housing societies. But the sorry state of affairs is that most of them collapsed for various reasons. However, there are some successes such as IRMA dairy cooperative society and such others at Anand in Gujarat state which has been responsible, since decades, for improving the economic conditions of their members.

A cooperative society is a society registered under the Cooperative Societies Act. A cooperative society is an association of the weak who come together to uplift themselves from weakness to strength through organised efforts.

The features of a cooperative society can be described as follows:

1. *It is a voluntary association* People join the society on their own. They have a common interest of improving their economic status through joint efforts. They are free to leave the society after giving notice.
2. *Separate legal entity* The society is to be registered under the Cooperative Societies Act. It has separate legal existence. It can sue and be sued. It can buy and sell the assets.
3. *Compulsory registration:* Every cooperative society has to be registered under the Cooperative Societies Act.
4. *Membership:* Membership is open. Usually, membership is available to all irrespective of their background in terms of caste, religion, political affiliation and so forth.
5. *Finances:* A cooperative society raises its finances through the sale of shares to its members. Each member cannot subscribe to more than 10 percent of the total share capital of Rs. 1000 whichever is higher. Finances are also raised by way of loans from the government and apex cooperative institutions.
6. *Set-up is democratic* The executive members are elected in a democratic way. Any member can contest for the executive committee.

7. *One member one vote* Irrespective of the number of shares held, each member is given only one vote. All members are equal here.
8. *Service objective* The main objective of the members is not to make profit but to improve their own economic well-being.
9. *Restricted reward to capital* The contribution to capital will yield a minimum rate of interest only.
10. *Non-transferability of shares* Shares in cooperative cannot be transferred.
11. *Equitable distribution of surplus* There are clear cut guidelines regarding issues such as distribution of surplus among members in various types of cooperative societies, transfer of surplus to reserves, payment of bonus, utilisation of a portion of surplus for the welfare of the locality. The main objective is to utilise the surplus for the welfare of the members and that of the society.

#### **Advantages**

1. *Voluntary organisation* A cooperative society is viewed as a synthesis of personal liberty and social justice. People join a society to improve their economic conditions.
2. *Equal voting rights* 'One man, one vote' principle prevents domination by a few members.
3. *Economic justice* Profits are distributed among the members on the basis of their individual contribution to the profits of the society.
4. *Limited liability* The members of the cooperative society have liability limited by the face value of the share.
5. *Continuous existence* The society has separate legal existence.
6. *Zero speculation* The shares of the cooperative society are always available to the new members. No need to pay higher price on the share than its face value.
7. *Each for all and all for each* This is the main slogan of the cooperation movement. All will be helpful for one and one is helpful for all.
8. *Self government* The society trains its members in different fields of business to make them proficient in their activities. With the help of the training they receive, they can monitor activities better.
9. *Larger identity of interests* The cooperative society operates in a limited geographical area or economic group, there is larger identity of interests among the members. Members can work for a healthier work environment and manage their activities more effectively.
10. *Government support* The government extends all support to the cooperative societies in terms of loans at low rate of interest and taxes, subsidies, providing tool kits, and so on.
11. *Exploitation eliminated* The members are free from the clutches of the middlemen and hence they can reach their customers directly. Even this reduces the costs of operations also.
12. *Taxation* There are special rates of taxation applicable to cooperative societies. They are relatively low.

#### **Disadvantages**

1. *Shortage of funds* There is restricted reward on the capital provided to the society. Therefore finding necessary resources may be a constant problem.
2. *Inefficient management* The executive committee members may not observe the principles of business and with the result the society may collapse.
3. *Many legal formalities* The society is registered under the Societies Act. The formation, administration, conducting meetings, liquidation, and so on are subject to the procedures laid in the Act.

- These are time-consuming and tedious.
4. *Shifting loyalties among members* Sometimes, the members of one society shift to another to get higher benefits.
  5. *Misuse of funds for sectional interests* The financial discipline is the secret of the success of many of the cooperative societies. Where this is lacking, funds are misused and mismanaged.
  6. *Recurring losses* Due to inefficient handling of affairs, the societies continue to get losses. This leads to loss of interest and faith in the system.

## PUBLIC ENTERPRISES

- Public enterprises occupy an important position in the Indian economy.
- Today, public enterprises provide the substance and heart of the economy.
- Its investment of over Rs.10,000 crore is in heavy and basic industry, and infrastructure like power, transport and communications.
- The concept of public enterprise in India dates back to the era of pre- independence.

### Genesis of Public Enterprises

In consequence to declaration of its goal as socialistic pattern of society in 1954, the Government of India realized that it is through progressive extension of public enterprises only, the following aims of our five years plans can be fulfilled.

- Higher production
- Greater employment
- Economic equality, and
- Dispersal of economic power

The government found it necessary to revise its industrial policy in 1956 to give it a socialistic bent.

### Need for Public Enterprises

The Industrial Policy Resolution 1956 states the need for promoting public enterprises as follows:

- To accelerate the rate of economic growth by planned development
- To speed up industrialization, particularly development of heavy industries and to expand public sector and to build up a large and growing cooperative sector.
- To increase infrastructure facilities
- To disperse the industries over different geographical areas for balanced regional development
- To increase the opportunities of gainful employment
- To help in raising the standards of living
- To reducing disparities in income and wealth (By preventing private monopolies and curbing concentration of economic power and vast industries in the hands of a small number of individuals)

## **Features of Public Enterprises**

- 1.Under the control of a government department:** The departmental undertaking is not an independent organization. It has no separate existence. It is designed to work under close control of a government department. It is subject to direct ministerial control.
- 2.More financial freedom:** The departmental undertaking can draw funds from government account as per the needs and deposit back when convenient.
- 3.Like any other government department:** The departmental undertaking is almost similar to any other government department
- 4.Budget, accounting and audit controls:** The departmental undertaking has to follow guidelines (as applicable to the other government departments) underlying the budget preparation, maintenance of accounts, and getting the accounts audited internally and by external auditors.
- 5.More a government organization, less a business organization .** The set up of a departmental undertaking is more rigid, less flexible, slow in responding to market needs.

## **Advantages of Public Enterprises**

- 1.Effective control:** Control is likely to be effective because it is directly under the Ministry.
- 2.Responsible Executives:** Normally the administration is entrusted to a senior civil servant. The administration will be organized and effective.
- 3.Less scope for mystification of funds:** Departmental undertaking does not draw any money more than is needed, that too subject to ministerial sanction and other controls. So chances for mis-utilisation are low.
- 4.Adds to Government revenue:** The revenue of the government is on the rise when the revenue of the departmental undertaking is deposited in the government account.

## **Disadvantages of Public Enterprises**

- 1.Decisions delayed:** Control is centralized. This results in lower degree of flexibility. Officials in the lower levels cannot take initiative. Decisions cannot be fast and actions cannot be prompt.
- 2.No incentive to maximize earnings:** The departmental undertaking does not retain any surplus with it. So there is no incentive for maximizing the efficiency or earnings.
- 3.Slow response to market conditions:** Since there is no competition, there is no profit motive; there is no incentive to move swiftly to market needs.
- 4.Redtapism and bureaucracy:** The departmental undertakings are in the control of a civil servant and under the immediate supervision of a government department. Administration gets delayed substantially.
- 5.Incidence of more taxes:** At times, in case of losses, these are made up by the government funds only. To make up these, there may be a need for fresh taxes, which is undesirable.

## **Forms of public enterprises**

Public enterprises can be classified into three forms:

- (a) Departmental undertaking
- (b) Public corporation
- (c) Government company

These are explained below

### **DEPARTMENTAL UNDERTAKING**

This is the earliest form of public enterprise. Under this form, the affairs of the public enterprise are carried out under the overall control of one of the departments of the government. The government department appoints a managing director (normally a civil servant) for the departmental undertaking. He will be given the executive authority to take necessary decisions. The departmental undertaking does not have a budget of its own. As and when it wants, it draws money from the government exchequer and when it has surplus money, it deposits it in the government exchequer. However, it is subject to budget, accounting and audit controls.

Examples for departmental undertakings are Railways, Department of Posts, All India Radio, and Doordarshan, Defence undertakings like DRDL, DLRL, ordinance factories, and such.

### **FEATURES**

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Any business organization wants to be more successful needs to be more dynamic, flexible, and responsive to market conditions, fast in decision making and prompt in actions. None of these qualities figure in the features of a departmental undertaking. It is true that departmental undertaking operates as an extension to the government. With the result, the government may miss certain business opportunities. So as not to miss business opportunities, the government has thought of another form of public enterprise, that is, Public corporation.

## PUBLIC CORPORATION

Having released that the existing government administration would not be able to cope up with the demand of its business enterprises, the Government of India, in 1948, decided to organize some of its enterprises as statutory corporations. In pursuance of this, Industrial Finance Corporation, Employees' State Insurance Corporation was set up in 1948.

Public corporation is a ‘right mix of public ownership, public accountability and business management for public ends’. The public corporation provides machinery, which is flexible, while at the same time retaining public control.

### Definition

A public corporation is defined as a ‘body corporate created by an Act of Parliament or Legislature and notified by the name in the official gazette of the central or state government. It is a corporate entity having perpetual succession, and common seal with power to acquire, hold, dispose off property, sue and be sued by its name’.

Examples of a public corporation are Life Insurance Corporation of India, Unit Trust of India, Industrial Finance Corporation of India, Damodar Valley Corporation and others.

## **Features of Public Corporation**

**1.A body corporate:** It has a separate legal existence. It is a separate company by itself. It can raise resources, buy and sell properties, by name sue and be sued.

**2.More freedom and day-to-day affairs:** It is relatively free from any type of political interference. It enjoys administrative autonomy.

**3.Freedom regarding personnel:** The employees of public corporation are not government civil servants. The corporation has absolute freedom to formulate its own personnel policies and procedures, and these are applicable to all the employees including directors.

**4.Perpetual succession:** A statute in parliament or state legislature creates it. It continues forever and till a statute is passed to wind it up.

**5.Financial autonomy:** Through the public corporation is fully owned government organization, and the initial finance are provided by the Government, it enjoys total financial autonomy. Its income and expenditure are not shown in the annual budget of the government, it enjoys total financial autonomy. Its income and expenditure are not shown in the annual budget of the government. However, for its freedom it is restricted regarding capital expenditure beyond the laid down limits, and raising the capital through capital market.

**6.Commercial audit:** Except in the case of banks and other financial institutions where chartered accountants are auditors, in all corporations, the audit is entrusted to the comptroller and auditor general of India.

**7.Run on commercial principles:** As far as the discharge of functions, the corporation shall act as far as possible on sound business principles.

## **Advantages of Public Corporation**

**1.Independence, initiative and flexibility:** The corporation has an autonomous set up. So it is independent, take necessary initiative to realize its goals, and it can be flexible in its decisions as required.

**2.Scope for Redtapism and bureaucracy minimized:** The Corporation has its own policies and procedures. If necessary they can be simplified to eliminate redtapism and bureaucracy, if any.

**3.Public interest protected:** The corporation can protect the public interest by making its policies more public friendly, Public interests are protected because every policy of the corporation is subject to ministerial directives and board parliamentary control.

**4.Employee friendly work environment:** Corporation can design its own work culture and train its employees accordingly. It can provide better amenities and better terms of service to the employees and thereby secure greater productivity.

**5.Competitive prices:** the corporation is a government organization and hence can afford with minimum margins of profit, It can offer its products and services at competitive prices.

**6.Economics of scale:** By increasing the size of its operations, it can achieve economics of large-scale production.

**7.Public accountability:** It is accountable to the Parliament or legislature; it has to submit its annual report on its working results.

## **Disadvantages of Public Corporation**

- 1. Continued political interference:** the autonomy is on paper only and in reality, the continued.
- 2. Misuse of Power:** In some cases, the greater autonomy leads to misuse of power. It takes time to unearth the impact of such misuse on the resources of the corporation. Cases of misuse of power defeat the very purpose of the public corporation.
- 3. Burden for the government:** Where the public corporation ignores the commercial principles and suffers losses, it is burdensome for the government to provide subsidies to make up the losses.

## **GOVERNMENT COMPANY**

Section 617 of the Indian Companies Act defines a government company as “any company in which not less than 51 percent of the paid up share capital” is held by the Central Government or by any State Government or Governments or partly by Central Government and partly by one or more of the state Governments and includes and company which is subsidiary of government company as thus defined”.

A government company is the right combination of operating flexibility of privately organized companies with the advantages of state regulation and control in public interest.

Government companies differ in the degree of control and their motive also. Some government companies are promoted as

- industrial undertakings (such as Hindustan Machine Tools, Indian Telephone Industries, and so on)
- Promotional agencies (such as National Industrial Development Corporation, National Small Industries Corporation, and so on) to prepare feasibility reports for promoters who want to set up public or private companies.
- Agency to promote trade or commerce. For example, state trading corporation, Export Credit Guarantee Corporation and so such like.
- A company to take over the existing sick companies under private management (E.g. Hindustan Shipyard)
- A company established as a totally state enterprise to safeguard national interests such as Hindustan Aeronautics Ltd. And so on.
- Mixed ownership company in collaboration with a private consult to obtain technical know how and guidance for the management of its enterprises, e.g. Hindustan Cables)

## **Features of Government Company**

**1. Like any other registered company:** It is incorporated as a registered company under the Indian companies Act. 1956. Like any other company, the government company has separate legal existence. Common seal, perpetual succession, limited liability, and so on. The provisions of the Indian Companies Act apply for all matters relating to formation, administration and winding up. However, the government has a right to exempt the application of any provisions of the government companies.

**2. Shareholding:** The majority of the share are held by the Government, Central or State, partly by the Central and State Government(s), in the name of the President of India, It is also common that the collaborators and allotted some shares for providing the transfer of technology.

**3. Directors are nominated:** As the government is the owner of the entire or majority of the share capital of the company, it has freedom to nominate the directors to the Board. Government may consider the requirements of the company in terms of necessary specialization and appoints the directors accordingly.

**4. Administrative autonomy and financial freedom:** A government company functions independently with full discretion and in the normal administration of affairs of the undertaking.

**5. Subject to ministerial control:** Concerned minister may act as the immediate boss. It is because it is the government that nominates the directors, the minister issue directions for a company and he can call for information related to the progress and affairs of the company any time.

### **Advantages of Government Company**

**1. Formation is easy:** There is no need for an Act in legislature or parliament to promote a government company. A Government company can be promoted as per the provisions of the companies Act. Which is relatively easier?

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

**3. Ability to compete:** It is free from the rigid rules and regulations. It can smoothly function with all the necessary initiative and drive necessary to compete with any other private organization. It retains its independence in respect of large financial resources, recruitment of personnel, management of its affairs, and so on.

**4. Flexibility:** A Government company is more flexible than a departmental undertaking or public corporation. Necessary changes can be initiated, which the framework of the company law. Government can, if necessary, change the provisions of the Companies Act. If found restricting the freedom of the government company. The form of Government Company is so flexible that it can be used for taking over sick units promoting strategic industries in the context of national security and interest.

**5. Quick decision and prompt actions:** In view of the autonomy, the government company take decision quickly and ensure that the actions and initiated promptly.

**6. Private participation facilitated:** Government company is the only from providing scope for private participation in the ownership. The facilities to take the best, necessary to conduct the affairs of business, from the private sector and also from the public sector.

### **Disadvantages of Government Company**

**1. Continued political and government interference:** Government seldom leaves the government company to function on its own. Government is the major shareholder and it dictates its decisions to the Board. The Board of Directors gets these approved in the general body. There were a number of cases where the operational polices were influenced by the whims and fancies of the civil servants and the ministers.

**2. Higher degree of government control:** The degree of government control is so high that the government company is reduced to mere adjuncts to the ministry and is, in majority of the cases, not treated better than the subordinate organization or offices of the government.

**3. Evades constitutional responsibility:** A government company is creating by executive action of the government without the specific approval of the parliament or Legislature.

**4.Poor sense of attachment or commitment:** The members of the Board of Management of government companies and from the ministerial departments in their ex-officio capacity. The lack the sense of attachment and do not reflect any degree of commitment to lead the company in a competitive environment.

**5.Divided loyalties:** The employees are mostly drawn from the regular government departments for a defined period. After this period, they go back to their government departments and hence their divided loyalty dilutes their interest towards their job in the government company.

**6.Flexibility on paper:** The powers of the directors are to be approved by the concerned Ministry, particularly the power relating to borrowing, increase in the capital, appointment of top officials, entering into contracts for large orders and restrictions on capital expenditure. The government companies are rarely allowed to exercise their flexibility and independence.

### **Distinction between Public Enterprises and Private Enterprises**

The following are the fundamental difference between public enterprises and private enterprises.

#### **Public Enterprises**

- These are established with the objective of rendering service to the people.
- It minimizes concentration of wealth in the hands of few persons.
- These are formed with social interest.
- it prevents regional imbalanced growth of industries.
- It is free from exploitation motive and as such the consumers and the employees are given a fair dealings.
- There is no shortage of capital to undertake risky and costly projects.
- It undertakes all sorts of industries irrespective of its nature.
- It can be operated on large scale and can attain gigantic size.

#### **Private Enterprises**

- These are established with the predominant objective of earning profit.
- It lends to concentration of wealth in the hands of few persons.
- These are formed with personal interest.
- It develops regional imbalances in the growth of industries.
- It is not free from exploitation motive and the consumers and the employees are not given a fair dealings.
- It feels insufficiency of capital to undertake risky and costly projects.
- It undertake those consumer goods industries where profit earning scope is high.
- It can be operated on large scale and cannot attain gigantic size.

## **NEW ECONOMIC ENVIRONMENT**

The new economic environment comprises the recent developments that have taken place in the environment of business. The term *environment* refers to all those factors that are external to the individual

business unit/industry. No single business unit has any control over such factors. Environment is basically *macro* in nature and the business firm is *micro*. Thus, in other words environmental factors constitute the main system in which the firm is only a micro sub-system. The firm has to function within the given main system over which it has no control. For example, the value system of society, the policies, rules and regulations of the State, the policies of the central bank, the institutional set-up of the country, the ideological beliefs of the leaders in power, the attitude towards foreign direct investment and multinational corporations, etc. constitute the environment system which in which a business firm operates.

- The New Industrial Policy of the State
- Export and import policies
- Policies regarding Sales Tax, Income Tax, Wealth Tax, Property Tax, etc.
- Government policy regarding concessional loans, subsidies, and loan waivers to industry, agriculture and educational sectors.

The environmental factors are varied in nature and the environment of business is quite complex. Economic environment in India was revolutionised by the New Industrial Policy, 1991. The economic environment in India prior to 1991 was characterised by regulations and controls in every aspect of business such as capacity utilisation limits on size of investment and restrictions on the imports. The backdrop of Industrial Policy, 1991 explains the compulsions for Government of India to initiate radical measure to turn around the ailing Indian economy.

### **A Backdrop to the New Industrial Policy, 1991**

Till 1991, India was a protected economy that took the onus of providing basic public utility services such as health, education, electricity, housing, transportation and irrigation. It was very difficult to mobilise investments in such areas from private entrepreneurs who look for quick returns. But there was no alternative for the government either. Consequently, the regime since independence was full of controls, licences, quotas and subsidies.

The other alternative was to liberalise all these controls and open up the economy for multinationals. Many felt that the economy was not ready for liberalisation and hence, the public sector was favoured and investments in public sector continued to mount.

There was an economic crisis in India in 1991 as a result of:

- oil price hike due to the Gulf War and its consequences on the import bill
- dwindling foreign remittances and declining exports
- low foreign exchange reserves (fallen to just US \$1 billion, which was just sufficient for imports of two weeks).
- rampant inflation (annual inflation rate at 17 per cent)
- economy growth rate reaching 1.2 per cent
- excessive fiscal deficit (8.4 per cent of gross domestic product)
- huge external loans from the International Monetary Fund (IMF) and World Bank.
- political uncertainty and turbulent social events

As a result of the economic crisis, fiscal discipline could not be maintained; oil imports consumed huge amounts of foreign exchange reserves and productivity from the industrial sector declined rapidly. Due to

a cut in foreign private lending, additional funds could not be borrowed either. This resulted in downgrading of India's creditworthiness by the International Credit Rating Agencies. To redeem the financial commitment, the Government of India had no alternative other than pledging its 60 tonnes of gold abroad. The multinational and financial institutions such as the International Monetary Fund (IMF), International Bank for Reconstruction and Development (IBRD), Asian Development Bank (ADB) and several other countries bailed out India of the economic crisis through appropriate funding.

Against this background, the Government of India had to launch a series of measures to set right the imbalances in the economy both at the micro and macro level<sup>1</sup>. The strategy, as outlined in the Statement on Industrial Policy of 1991, initiated by the then Prime Minister, PV Narasimha Rao, and then Finance Minister, Manmohan Singh, was to ensure economic stability in the short run and also bring structural reforms in the long run.

### New Industrial Policy (NIP), 1991

The Industrial Policy Resolution of 1956 emphasised on increasing state involvement through the public sector. The main objective of achieving economic growth, was by allowing public sector to grow fast and attain 'commanding heights'. The Statement on Industrial Policy of 1991 appears to be the reversal of the 1956 policy.<sup>2</sup>

The objectives of the Industrial Policy, 1991 were:

- (a) to speed up liberalisation measures
- (b) to correct the distortions or weaknesses that might have crept in
- (c) to maintain sustained growth in productivity and gainful employment
- (d) to attain international competitiveness

The Industrial Policy, 1991, is called the New Industrial Policy (NIP). Its main features are:

- (a) *Doing away with industrial licensing requirements:* In a major move to liberalise the Indian economy, the new industrial policy abolished all kinds of industrial licensing irrespective of the level of investment in all except 18 industries related to security and strategic concerns, safety, environmental issues, etc. In continuation of the 1991 policy with regard to delicensing, there are only six industries related to health, strategic and security considerations that remain under the purview of industrial licensing.
- (b) *Diminishing role of public sector:* The spirit of the 1991 policy is diametrically opposite to that of 1956 policy with regard to the role of the public sector in economic growth and development. The 1956 resolution reserved 17 industries in the public sector whereas the 1991 policy reduced this to eight and by 2001, the number reserved for public sector is just three. The government decided to open the arms and ammunition industry also to the private sector. The government also made its intentions clear to further reduce the importance of the public sector by introducing a 'divestment' wherein private sector participation is encouraged in the important areas of the economy. The divestment scheme includes offering the shareholding in public enterprises to mutual funds, financial institutions, employees and general public.
- (c) *Incentives and concessions for foreign investment and technology:* The New Industrial Policy prepared a specified list of high technology and high investment priority industries where automatic permission was to be made available for foreign direct investment up to 51 per cent foreign equity. At present, foreign equity up to 100 per cent has been permitted in infrastructure industries such as electricity generation, transmission and distribution, construction and maintenance of roads, highways, vehicular bridges, ports and harbours. The main purpose of announcing these investments is to make the Indian industry more vibrant, modern and efficient.

- (d) ***Drastic amendments to MRTP Act:*** The Monopolies and Restrictive Trade Practices (MRTP) Act has been amended in tune with the spirit of the NIP. Earlier, there were restrictions on the size of assets of MRTP companies (which are very strong in terms of assets and market hold). Such restrictions have now been lifted and the companies operate freely. For instance, foreign equity has gone up to a maximum limit of 51 per cent in most industries. In the case of export oriented units (EOUs) and life saving drugs and equipment manufacturers, there is provision for 100 per cent foreign equity. The now amended act emphasises prevention of restrictive and unfair trade practices.
- (e) ***Removal of compulsory convertibility clause:*** In India, a greater part of the industrial investment used to be made in the form of loans from banks and financial institutions. These institutions followed compulsory practice of including a convertibility clause in their lending operations for new projects. This clause provided these institutions an option of converting part of their loans into equity if it was thought necessary by their respective managements. Although this option was not generally exercised, it carried a threat of takeover of private firms by financial institutions. The new industrial policy, therefore, stated that financial institutions will not impose this mandatory convertibility clause.

## Critical Evaluation of the New Industrial Policy

The 1970s was considered a time of stagnation and liberalisation was thought to have commenced slowly in the 1980s enabling the industry to recover. Those who have agreed with this view say strong efforts should be made to liberalise the entire economy in order to speed up industrialisation and economic growth. Those who appreciate the NIP feel that Indian companies such as Wipro, Infosys and Satyam Computers would not have seen the light of the day but for liberalisation. The following are some of the merits of NIP 1991:

- (a) ***Growth of new economy companies:*** The 'new economy' companies such as Infosys have grown in size and stature, thanks to liberalisation and NIP.
- (b) ***Economy bailed out:*** It is a fact that the NIP bailed out the Indian economy from economic crisis and degradation.
- (c) ***New breed of entrepreneurs:*** As a result of liberalised economic policies since 1991, Indian economy could recover fast and develop a new breed of entrepreneurs such as Narayana Murthy, of Infosys.
- (d) ***FDI and new technologies:*** It was felt that the changes in respect of foreign investment and foreign technology agreements introduced in 1991 via the New Industrial Policy were basically meant to attract foreign direct investment (FDI), superior technology and managerial expertise.
- (e) ***Greater competitive strength:*** It enabled Indian entrepreneurs to have international exposure, withstand competition from multinationals with greater confidence and take the multinational route.
- (f) ***Healthy competition:*** It is also felt that the amendments to the MRTP Act will encourage healthy competition. Hitherto, the MRTP Act served no clear purpose even though one of its basic objec-

tives was to check and curb monopolies and restrictive trade practices. In fact, the act obstructed the growth of Indian companies for a long time. Recently, a new law when called 'competition law' has been enacted with the clear objective of encouraging competition among companies and penalising those that come in the way of healthy competition.

- (g) **Sustained economic growth:** It was felt that the NIP, along with other reforms such as in the financial sector, fiscal policy, and monetary policy, would lead to increased productivity, efficiency, employment and sustained economic growth.

However, the NIP was also criticised vehemently on the following grounds:

- (a) It buried once and for all the 1956 policy resolution that was considered to be the 'economic constitution' of the nation.
- (b) The unrestricted entry of multinationals most probably will decimate the indigenous industry in the country.
- (c) The absence of effective legal framework may lead to frequent frauds and scams demoralising the investor class.
- (d) The multinationals may exploit the Indian consumer by encouraging conspicuous consumption. They may not be helpful in technology transfer. With their superior technologies, they may dominate the Indian market especially in consumer durable segment. If MNCs are allowed to operate freely, indigenous research and development may be the first casualty.
- (e) It may lead to lopsided development and social and economic inequalities. These may disturb social harmony causing irreparable damage in the long run.
- (f) The MNCs may tend to put their brands on goods manufactured by the small industry and use Indian markets for enhancing their profits. In other words, instead of developing India as a major production and export base, many MNCs may actually end up as trading intermediaries making huge profits in the process.

Originally, the licensing system was introduced to achieve socio-economic objectives of balanced regional development, equitable distribution of income and wealth, prevention of concentration of economic power in the hands of a few, etc.

From the 1950s through the 1970s government intervention and expansion of the public sector were lauded as the right steps due to the belief that markets tend to fail and it is legitimate for the government to intervene. India was a strong votary of this view and designed its industrial policy accordingly. But the elaborate licensing system and procedures failed on the one hand to achieve the desired objectives and on the other, obstructed economic growth.

In the 1980s, world opinion changed significantly in favour of free market economy, which meant greater efficiency and higher productivity. The new belief that governments tend to fail when they enter into business (due to excessive interference of the government resulting in mounting losses in the public sector, red tapism, state monopoly, and decimating entrepreneurship in the private sector) gained ground in several parts of the world. The Government of India also initiated some liberalisation measures in the 1980 policy in a small way. Two liberalisation measures in the field of industrial licensing pertained to:

- (a) allowing automatic growth
- (b) regularisation of excessive capacity.

The industrial policy of 1991 removed, by and large, the licensing system and simplified the procedures for setting up and expanding industrial units. There were substantial amendments to Foreign Exchange Regulation Act (FERA) to enable foreign companies to enter the Indian markets in a big way. Today this Act is called Foreign Exchange Management Act (FEMA).

The liberalisation measures taken since 1991 have been addressed to augment the production of necessary goods and services in the Indian economy. These measures can be grouped under (a) Trade and capital flow reforms, (b) Industrial deregulation, (c) Public enterprise reforms (including divestments), and (d) Financial sector reforms.

## Trade and Capital Flow Reforms

The major trade reforms comprised:

- Devaluation of Indian rupee (to restore India's competitiveness)
- Introduction of convertibility of the rupee on trade account and, later, current account
- Allowing foreign equity participation up to 51 per cent in service areas
- Delinking technology transfer from equity investment as a measure of flexibility in the choice of technology

Foreign companies could bring patented products for sale to India, they are now eligible for appointment as technical advisors or management consultants. They could also deal in financial matters with the Indian public in terms of accepting deposits or borrow, if necessary and repatriate profits.

**Foreign Trade Policy** An outward looking and liberal trade policy is one of the main features of India's economic reforms. The trade policy:

- rationalised tariff levels.
- dispensed with the practice of channelising large part of the exports and imports through the public sector. This gave an opportunity to the private sector to gain access to foreign trade.
- provided a variety of export promotion measures (under the Exim Policy<sup>3</sup> 1992–97) such as setting up export oriented units from agricultural and allied sectors, simplification of the Export Promotion Capital Goods Scheme, broadened the scope of export processing zones, duty-free import for export under the advance licensing scheme, setting up of exporters' grievance cell in the Ministry of Commerce, etc. Enhancing global competitiveness of the Indian economy is one of the major thrust areas of the present Exim Policy of 2002–07.
- allowed exporters exim<sup>4</sup> scripts equal to 30 to 40 per cent of their export earnings to import even restricted items. This was replaced by the dual exchange rate system which was further replaced by the unified exchange rate during 1993–94 under the liberalised exchange rate mechanism.
- reduced drastically quantitative restrictions by introducing a streamlined and simplified system of export and import licences (to boost exports and imports).

**Imports** Most goods are freely importable on payment of a specified customs duty. However, imports are restricted in the case of a small number of goods on the bases of security, health and environmental protection. Also, these are such goods that require low skills and can be produced by the small-scale or cottage industries by employing a large number of people.

There are no quantitative restrictions on the import of capital goods and intermediaries. However, in the case of second hand capital goods, only those with more than a 10-year usage can be imported, with a

specific licence from the Government of India. In other words, second hand goods with less than a 10-year usage cannot be imported.

No duty is charged in respect of raw materials, intermediaries, components etc meant for the manufacture of goods for export and these can be imported against a licence. Input-output norms have been laid down and these will determine the amount of duty free import of inputs allowed for specified products meant for export. Unless importers adhere to specified value-addition norms and export obligations, duty-free licences will not be issued.

The Export Promotion Capital Goods (EPCG) scheme provides for import of new capital goods at a concessional basic customs duty rate of 5 per cent, against an export obligation to be fulfilled over a specified period.

**Exports** Export of goods is allowed freely, except for a few items in the negative list. Exports are the major focus of India's trade policy, and a thrust in the new economic policy of the country. The export promotion package is better with incentives offered anywhere in the world. The major focus has been to motivate foreign investors to set up Export Oriented Units (EOUs) in India.

Export profits were initially exempt from income tax. (The proportion of the export turnover to the total turnover decides the profit.) However, tax exemption is being phased out over a period of five years at the rate of 20 per cent annually with effect from financial year 2000–01.

**Tariff liberalisation** The tariff rates have been lowered over the past seven years, from the peak rate of 350 per cent in June, 1991, to 35 per cent in 2000–01. Most imports of capital goods attract basic customs duty at the rate of 25 per cent. Import duties on equipment are lowered for projects in specific sectors. The tariff structure is favourable for those companies that import equipment to set up projects in the infrastructure sector.

## Industrial Deregulation

The industrial sector, which was tied up by many regulations such as the MRTP Act, etc. was freed by appropriate deregulation in the NIP, 1991.

Some of the major features of deregulation were:

- (a) **Industrial licensing abolished:** Except for establishments in the health, strategic and security sectors, the new industrial policy has abolished licensing in all other industries irrespective of the level of investment.
- (b) **Limit on the size of companies:** Enforced earlier under the MRTP Act, was scrapped to enable the industrial units grow optimally and derive the benefits of scale economies.
- (c) **Simplifying, the industrial location policy:** There is no need to, for instance, obtain industrial approval from the Centre except for industries subject to compulsory licensing for projects to be set up in locations other than cities of more than one million population.
- (d) **Phased manufacturing programmes** for new projects, introduced earlier to encourage indigenisation in manufacturing, have been abolished. It was felt that there is no need for enforcing the local content requirements on every case, particularly in the light of substantial reforms made in the trade policy.
- (e) **Removal of mandatory convertibility clause:** Financial institutions can no longer take the option of converting part of their loans into equity of newly-funded projects.

## PRIVATISATION

Privatisation means 'increasing the role of market forces'. In the context of privatisation of public enterprises, it means *inducting private ownership in State-owned public enterprises with a strategy to reduce the role of government in business*. Privatisation does not necessarily involve a change in ownership. A public enterprise is said to be privatised if private management and control figure on the board of directors. The privatisation wave has swept the world. Britain, Portugal, East European countries, Russia and China are some of the countries which have also resorted to privatisation.

### Why Privatisation?

Privatisation is resorted to for any one or more of the following reasons:

- To raise revenues for the government through sale of assets of public enterprises.
- To extend the State ownership to private entrepreneurs.
- To improve efficiency through competition.
- To improve the performance of the a Public Sector Enterprise (PSE) when it is not doing well in terms of (a) return on capital employed, (b) contribution to national exchequer, (c) rate of capacity utilisation, (d) number of patents or new products developed through research and development.

Privatisation may take one or more of the following forms:

(a) **Liquidation** The assets of the public enterprise, in case of liquidation, are sold off to a private entrepreneur for a consideration.

(b) **Management buyout** Here employees may form a cooperative and take over the ownership of the PSE. They may raise the necessary finances from financial institutions for this purpose. They also get dividends as owners. The union finance minister announced in his budget speech of 1988 that five per cent of capital issues would be reserved for employees.

(c) **Holding company pattern** A holding company is one which has working control of one or more companies called subsidiaries. It was a part or whole of the share capital of subsidiaries. The main purpose of holding company is to own shares in other companies and to exercise control over the same.

(d) **Liberalisation** Liberalisation as a strategy of privatisation refers to an attempt to permit and promote competition in areas where previously there was none. Earlier road transport was totally controlled by state road transport corporations. Today, the government has permitted private bus operators to run their buses on State Road Transport Corporation (SRTC) routes. Such a policy leads to competition and passengers are the real beneficiaries.

(e) **Leasing** Here, the government transfers the physical possession of a PSE but not its ownership to a private agency with certain conditions and for a specific period. After the expiry of the lease period, the government takes back the possession of the PSE. The major advantage here is that the PSE may experience a turnaround during the period of lease in terms of say, reduction in wastage and costs or better degree of efficiency. The government reserves the right to cancel the lease agreement at any stage.

(f) **Denationalisation** When the government transfers the ownership of a public enterprise to entrepreneurs in the private sector, the public enterprise is said to be denationalised.

(g) **Joint venture** When part of the ownership (ranging from 25-50 per cent) in public enterprise is transferred to the private sector, it is said to be a joint venture. The percentage of transfer in the ownership is governed by a number of factors such as government policy, financial condition of the PSE, etc.

(h) **Restructuring** The government may prefer to restructure ailing or sick PSEs by redefining or restructuring the whole set of operational or commercial activities or just the issues governing financial matters.

(i) **Disinvestment** One of the main objectives of privatisation is to raise resources for the government. In India, disinvestment is the process of withdrawing the investments made by the government in a public enterprise. In keeping with the NIP of 1991, the government has been following a disinvestment strategy in respect of PSEs. Disinvestment as a current trend has been discussed earlier under public sector reforms.

**(j) Franchising or Contracting out** When private firms are allowed and encouraged to make bids to run services that were previously exclusively run by the public sector, the work is said to be franchised or contracted out. For example, municipalities entrusting the work of cleaning roads and clearing the garbage and debris to private agencies instead of getting these done from the employees of municipality, Andhra Pradesh.

**(k) Operational strategies** Several measures can be initiated for the privatisation of a public enterprise without resorting to any of the above measures. For instance, the top management of a public enterprise may be directed to:

- (i) *increase production* by offering special incentives and overtime to the workers to meet the market demand.
- (ii) *outsource* some of its operations where the public enterprise does not have core competencies.
- (iii) *buy from the market* by special tenders such items as may be costly to produce internally.
- (iv) *raise funds* from the national or international capital market, and so on.

These operational strategies provide operational autonomy for the public enterprise to function as per the market requirements while reducing the degree of government control and interference in its day-to-day administration.

## GLOBALISATION

Globalisation means 'integrating' the economy of a country with the world economy with a view to eliminating supply bottlenecks, improving investment climate, providing a wide choice of quality goods and services to the ultimate consumers. Through globalisation, India can attract huge foreign direct investment in different sectors of the economy, including infrastructure. More details on how India can projects its strengths while attracting foreign direct investment are available in Box 12.4.

In general, globalisation is characterised by the following parameters:

- *Reduction of trade barriers* among different countries across the world.
- Creation of a *conducive environment* in which there can be perfect mobility of factors of production such as capital and human resources among countries. For example, developed countries have abundance of capital and developing countries such as India have abundance of skilled, semi-skilled and labour can move from developing countries to developed countries.
- Ensuring *free flow of technology* across the countries. For example, companies from developed countries must be willing to provide latest technology to collaborative firms in developing countries.

## Factors that Led to Globalisation

The following are some of the major factors that paved the way for India to adopt the globalisation policy.

- Large deficit in balance of payments during 1990–91
- Gulf War in 1990–91
- Trade deficit as a result of steeply rising import bill with a decline in exports
- Declining foreign remittances
- External commercial borrowings at higher rates of interest

- Declining investors' confidence
- Downgrading of India's credit rating by international agencies
- Political uncertainty
- Excessive outflow of funds brought in by foreign institutional investors
- Dwindling foreign exchange reserves hardly adequate to meet import requirements for two weeks
- The terms and conditions as put forth by the World Bank.

All these factors pushed the Indian economy to a corner in such a way that it had no alternative but to bounce back with a series of reforms aimed at stabilisation and structural adjustments in the economy. These reforms can be classified into the following categories:

- (a) *stabilisation measures* to cut down the fiscal deficit and the rate of growth of money supply
- (b) *liberalisation measures* to enhance productivity by relaxing the restrictions on production, investment and prices so that it becomes a 'market-driven' economy from an 'administered or protected' economy.
- (c) *globalisation measures* that involve removal of the restrictions on the international flows of capital, technology, goods and services.

Thus, globalisation is a part of the structural adjustment programme. It is interesting to note that all measures are complementary and not mutually exclusive. One leads to the other. For instance, without controlling fiscal deficit and growth of money supply, the rate of inflation and balance of payments cannot be controlled. Unless an economy is stable in terms of growth, it may not be in a position to attract foreign investment.

## Policy Measures Towards Globalisation

**1. Full Convertibility** A country's currency is fully convertible when it allows its own exchange rate to be determined in the international market without official intervention. The Government of India has been lifting exchange control measures in a phased manner and is working towards full convertibility. Presently, India has full convertibility on the current account, which implies freedom to buy or sell foreign exchange for selected international transactions such as payments of imports, interest on loans, etc.

**2. Liberalising Imports** This is more of a strategic measure that makes available to domestic producers quality machinery and other key inputs, which are likely to facilitate quality output for exports. The government has, in keeping with the requirements of the World Bank, to bear lowering import tariffs on all goods, except those mentioned in the 'negative' list and allowing free import of all goods, including capital goods that are not included in the negative list. The custom duties, *ad valorem*<sup>9</sup> and other surcharges have been drastically reduced to facilitate imports. India, as a member of the World Trade Organisation, is committed to phasing out quantitative restrictions.

**3. Attracting Foreign Capital** The size of foreign direct investment is one of the major indicators of globalisation of an economy. The NIP, 1991, announced a list of high technology and investment priority industries where automatic permission was granted for direct foreign investment up to 51 per cent foreign equity. This list covers different industries such as entertainment, electronics, food processing, etc. and the service sector. Foreign companies can set up power plants in India with 100 per cent equity

participation. They can invest in Indian capital markets provided they are registered with the Securities and Exchange Board of India (SEBI) and approved by the Reserve Bank of India (RBI). Several operational restrictions prevalent earlier have been removed. Today, foreign investors enjoy a host of privileges. They can use their trademarks in India, take back their profits to their respective native countries, deal in immovable property in India etc. and 100 per cent foreign direct investment is allowed in select sectors such as pharma, tourism, infrastructure, telecom, etc.

## **Consequences of Globalisation**

The following are the likely consequences of the globalisation policy, if properly implemented.

1. **Trade barriers disappear:** Trade barriers disappear when the domestic economy is integrated into the global economy.
2. **Increased competition:** The degree of competition goes up. Domestic producers have to compete with foreign manufacturers. It is an opportunity to enhance domestic competitiveness through increased productivity and efficiency.
3. **Exports and imports likely to increase:** New markets can be explored and exports can be strengthened. Imports are also likely to increase.
4. **Access to WTO:** Membership of the World Trade Organisation is essential to resolve international trade discipline. India has emerged stronger, in the global market, through globalisation.

## **CHANGING BUSINESS ENVIRONMENT TO POST LIBERALIZATION SCENARIO**

Economic reform, as envisaged in New industrial policy of 1991, are now 15 year old and there is now ample evidence to assess their impact on Indian economy. The Indian industry for over 40 years since independence was predominantly operating in a regulated and protected economy and hence remained an underperformer. During the implementation of LPG policies, it could sustain extremely well the pressures in the new competitive environment.

**The impact of economic reforms can be outlined as follows:**

- 1.Attention to world market:** many companies are setting their eyes on global markets. With their prudent financial polities, they have emerged cash rich and with liberal flow of foreign direct investment, they are poised to improve in world class ratings.
- 2.Improvement in work culture:** every where, including in government organizations, there is noticeable change in the work culture. The employees have realized the need for observing speed in response, customer focus and organization have been focusing on high performing work culture.
- 3.Focus on capital intensive technologies / processes :** the focus was on labour intensive policies and processes. Not considering the philosophy that capital intensive technologies will increase unemployment most industries have been focusing on capital intensive technologies.
- 4.Downsizing and rightsizing:** with a view to reducing the salary bill and enhancing the productivity per employee, every organization without exception , has reduced the number of employees significantly through voluntary retirement schemes .
- 5.Awareness and stress on quality and R& D:** the customer earlier used to trades off between price and quality. In other words, the trader used to successfully clear off his stocks of lower quality by marginally reducing the selling price. This trend has changed now. The quality awareness levels trend, organizations have started earmaking huge budgets for R&D to attain world class quality in producing goods and rendering the services.
- 6.Scale economies:** it is common to find leading companies in every sector to double/ triple their volume of production to attain scale economies through rapid technological growth and increased productivity.
- 7.Aggressive brand building:** the market place became increasingly competitive in view of domestic companies becoming more aggressive in promoting their brands and foreign companies invading . Indian markets through their cost effective quality products/ service.

## Critical Evaluation of LPG Policies

But there is a downside of the LPG policies. The demerits are:

**(a) Giants and liliputians compete** It resulted in competition among giants and Liliputs.

Many Indian enterprises are relatively very small in terms of size and resources and have not been able to face competition from multinationals. Domestic producers have been the worst hit as a result of the entry of multinationals that have huge finances, superior technologies and access to policymakers in political circles. The major sufferers are the old-economy companies.

**(b) FIIs more opportunistic** Foreign direct investment has been a very sensitive phenomenon and appears to be elusive. With every slight uncertainty in the economy, the inflows and outflows in foreign direct investment have fluctuated wildly. These volatile fluctuations reflect the opportunistic attitude of FIIs rather than their commitment to their marketplaces.

**(c) Costly debt servicing** Borrowed funds are used in the country, for building capital assets such as infrastructure. Debt servicing has increased at an alarming rate.

**(d) Public sector employees disgruntled** With disinvestment in the public sector, the government has undone what has been done in the last four decades. This has demotivated PSU employees.

**(e) Decline in purchasing power** LPG provides a wide choice to the Indian consumer in terms of quality and variety. But the purchasing power of the average consumer has declined. Indian agriculture and small industry are the worst affected sectors due to government policies since 1991. These two sectors used to provide large employment and were a source of income generation in rural and semi-urban areas. Due to increasing competition and eroding profit margins, not only has the Indian small industry, but also the large industry in the private sector, seen tough times.

**(f) Declining personal savings** With a variety of goods and services dumped by multinationals, the consumption expenditure of the people of India has gone up during the last decade. But the savings rate has declined. Targeting higher levels of economic growth with a declining rate of savings may be merely a pipe dream. The consequences of the reforms will be better known only in the long run.

**(g) Disappearing competitive edge** Most business firms in the domestic industry lost their competitive capability due to factors such as diseconomies of scale, outdated technology, patronage from the government, excessive rates of interest on loans and taxation, etc. It was a piece of cake for foreign companies to conquer the Indian markets with their quality products and services.

**(h) Increasing sickness in industry** The loss of business to multinationals increased the rate of sickness among the Indian industries.

**(i) Unfavourable government policies** Imports are allowed in the areas reserved for the small-scale sector whereas Indian entrepreneurs are not allowed to produce in those areas. Government policies have been more conducive to multinationals in terms of granting them counter guarantees for fast-track projects. Indian firms have been deprived of such privileges.

**(j) Benefits of LPG marginalised** The increase in India's share in world exports due to globalisation has been very marginal but the damage it has done to the country's economy as a whole is substantial.

**(k) Dumping grounds** The practice of selling goods abroad at below the normal price or even below the cost is called dumping. The purpose of dumping may be to capture foreign market or to eliminate competition from foreign firms. Industrially advanced countries possess a high degree of negotiation and bargaining power at the World Trade Organisation (WTO) and they have always been successful in pushing their patented products and obsolete technologies into developing countries in the name of technology transfer. Developing countries are more viewed as dumping grounds for foreign products and services for no significant benefit in return.

**(i) Disguised protection** Social clauses, such as child labour, are being used to beat India, particularly where Indian products are cost effective and of comparable quality. In recent years, the United States raised the issue of labour standards to protect its domestic market from the Indian carpets. When the developed countries cannot compete with the developing countries, they resort to a disguised protection measures such as invoking social clauses. The WTO has, on a number of occasions, ruled that the US has been adopting unfair trade practice by imposing such restrictions.

**(m) Anti-dumping duties** Though antidumping duties refer to the duties on the products of foreign firms to discourage dumping practices, Indian firms had to face antidumping duties in US and

such duties literally deprived Indian Industry of the benefits of globalisation. Indian textiles are popular all over the world for their quality and price. The Indian garment industry had a tough time and lost a major part of its export market, when the US alleged that Indian skirts could catch fire easily. They could not prove the allegation but the damage was done.

## UNIT IV

### **INTRODUCTION TO FINANCIAL ACCOUNTING AND ANALYSIS**

#### **1. INTRODUCITON**

As you are aware, every trader generally starts business for purpose of earning profit. While establishing business, he brings own capital, borrows money from relatives, friends, outsiders or financial institutions. Then he purchases machinery, plant , furniture, raw materials and other assets. He starts buying and selling of goods, paying for salaries, rent and other expenses, depositing and withdrawing cash from bank. Like this he undertakes innumerable transactions in business. Observe the following transactions of small trader for one week during the month of July, 1998.

1998		Rs.
July 24	Purchase of goods from Sree Ram	12,000
July 25	Goods sold for cash	5,000
July 25	Sold gods to Syam on credit	8,000
July 26	Advertising expenses	5,200
July 27	Stationary expenses	600
July 27	Withdrawal for personal use	2,500
July 28	Rent paid through cheque	1,000
July 31	Salaries paid	9,000
July 31	Received cash from Syam	5,000

The number of transactions in an organization depends upon the size of the organization. In small organizations, the transactions generally will be in thousand and in big organizations they may be in lakhs. As such it is humanly impossible to remember all these transactions. Further, it may not be possible to find out the final result of the business without recording and analyzing these transactions.

Accounting came into practice as an aid to human memory by maintaining a systematic record of business transactions.

#### **2. BOOK-KEEPING AND ACCOUNTING**

According to **G.A. Lee** the accounting system has two stages.

1. The making of routine records in the prescribed form and according to set rules of all events with affect the financial state of the organization; and
2. The summarization from time to time of the information contained in the records, its presentation in a significant form to interested parties and its interpretation as an aid to decision making by these parties.

**First stage is called Book-Keeping and the second one is Accounting.**

**BOOK KEEPING:** Book – Keeping involves the chronological recording of financial transactions in a set of books in a systematic manner.

**ACCOUNTING:** Accounting is concerned with the maintenance of accounts giving stress to the design of the system of records, the preparation of reports based on the recorded date and the interpretation of the reports.

### **DISTINCTION BETWEEN BOOK KEEPING AND ACCOUNTING:**

Thus, the terms, book-keeping and accounting are very closely related, though there is a subtle difference as mentioned below.

**1. Object :** The object of book-keeping is to prepare original books of Accounts. It is restricted to journal, subsidiary book and ledger accounts only. On the other hand, the main object of accounting is to record analyse and interpret the business transactions.

**2. Level of Work:** Book-keeping is restricted to level of work. Clerical work is mainly involved in it. Accountancy on the other hand, is concerned with all levels of management.

**3. Principles of Accountancy:** In Book-keeping Accounting concepts and conventions will be followed by all without any difference. On the other hand, various firms follow various methods of reporting and interpretation in accounting.

**3. Final Result:** In Book-Keeping it is not possible to know the final result of business every year,

## **ACCOUNTING**

### **2.1 MEANING OF ACCOUNTING**

- Thus, book-keeping is an art of recording the business transactions in the books of original entry and the ledgers.
- Accountancy begins where Book-keeping ends.
- Accountancy means the compilation of accounts in such a way that one is in a position to know the state of affairs of the business. The work of an accountant is to analyse, interpret and review the accounts and draw conclusion with a view to guide the management in chalking out the future policy of the business.

### **2.2 Definition of Accounting:**

**Smith and Ashburne:** “Accounting is a means of measuring and reporting the results of economic activities.”

**R.N. Anthony:** “Accounting system is a means of collecting summarizing, analyzing and reporting in monetary terms, the information about the business.

**American Institute of Certified Public Accountants (AICPA):** “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.”

Thus, accounting is an art of identifying, recording, summarizing and interpreting business transactions of financial nature. Hence accounting is the Language of Business.

## **BRANCHES OF ACCOUNTING**

The important branches of accounting are:

- 1. Financial Accounting:** The purpose of Accounting is to ascertain the financial results i.e. profit or loss in the operations during a specific period. It is also aimed at knowing the financial position, i.e. assets, liabilities and equity position at the end of the period. It also provides other relevant information to the management as a basic for decision-making for planning and controlling the operations of the business.
- 2. Cost Accounting:** The purpose of this branch of accounting is to ascertain the cost of a product / operation / project and the costs incurred for carrying out various activities. It also assist the management in controlling the costs. The necessary data and information are gathered from financial and other sources.
- 3. Management Accounting :** Its aim to assist the management in taking correct policy decision and to evaluate the impact of its decisions and actions. The data required for this purpose are drawn accounting and cost-accounting.
- 4. Inflation Accounting :** It is concerned with the adjustment in the values of assets and of profit in light of changes in the price level. In a way it is concerned with the overcoming of limitations that arise in financial statements on account of the cost assumption (i.e recording of the assets at their historical or original cost) and the assumption of stable monetary unit.
- 5. Human Resource Accounting :** It is a branch of accounting which seeks to report and emphasize the importance of human resources in a company's earning process and total assets. It is concerned with the process of identifying and measuring data about human resources and communicating this information to interested parties. In simple words, it is accounting for people as organizational resources.

## **USERS OF ACCOUNTING INFORMATION**

Different categories of users need different kinds of information for making decisions. The users of accounting can be divided in two broad groups (1). Internal users and (2). External users.

### **Internal Users:**

**Managers :** These are the persons who manage the business, i.e. management at the top, middle and lower levels. Their requirements of information are different because they make different types of decisions.

Accounting reports are important to managers for evaluating the results of their decisions. In addition to external financial statements, managers need detailed internal reports either branch division or department or product-wise. Accounting reports for managers are prepared much more frequently than external reports.

Accounting information also helps the managers in appraising the performance of subordinates. As such Accounting is termed as "the eyes and ears of management."

### **External Users :**

#### **1. Investors :**

Those who are interested in buying the shares of company are naturally interested in the financial statements to know how safe the investment already made is and how safe the proposed investments will be.

## **2. Creditors :**

Lenders are interested to know whether their load, principal and interest, will be paid when due. Suppliers and other creditors are also interested to know the ability of the firm to pay their dues in time.

## **3. Workers :**

In our country, workers are entitled to payment of bonus which depends on the size of profit earned. Hence, they would like to be satisfied that the bonus being paid to them is correct. This knowledge also helps them in conducting negotiations for wages.

## **4. Customers :**

They are also concerned with the stability and profitability of the enterprise. They may be interested in knowing the financial strength of the company to rent it for further decisions relating to purchase of goods.

## **5. Government:**

Governments all over the world are using financial statements for compiling statistics concerning business which, in turn, helps in compiling national accounts. The financial statements are useful for tax authorities for calculating taxes.

## **6. Public :**

The public at large interested in the functioning of the enterprises because it may make a substantial contribution to the local economy in many ways including the number of people employed and their patronage to local suppliers.

## **7. Researchers:**

The financial statements, being a mirror of business conditions, is of great interest to scholars undertaking research in accounting theory as well as business affairs and practices.

## **OBJECTIVES OF ACCOUNTING:**

### **1.Maintaining proper/systematic record of Business Transactions:**

Accounting replaces the limitations of human memory. The main purpose of accounting is to identify business transactions of financial nature and enter them into appropriate books of accounts. Accounting helps to keep record of all financial transactions and events systematically in proper books of accounts.

### **2.To ascertain the financial results of the enterprise:**

One of the main objects of accounting is to ascertain or calculate the profit or loss of the business enterprise. Income statements are prepared with the help of trial balance (prepared with the balances of ledger accounts). At the end of the accounting period, we prepare trading account and ascertain gross profit or gross loss. Afterwards profit and loss account is prepared to ascertain net profit or net loss.

### **3.To ascertain financial position or financial health of the business:**

At the end of the accounting period, we prepare position statement. Balance sheet is a statement of assets and liabilities of the business on a particular date and serves as a parameter to measure the financial health of the business.

### **4.To help in decision making:**

Accounting serves as an information system for helping to arrive at rational decisions. American Accounting Association also stresses upon this point while defining the term Accounting as "the process of identifying, measuring and communicating economic information to permit informed judgments and decisions by the users of the information. Accounting keeps systematic record of all transactions and events which are used to assist the management in its function of decision making and control.

## **5. Providing Effective Control over the Business:**

Accounting reveals the actual performance of the business in terms of production, sales, profit, loss, cost of production and the book value of the sundry assets. The actual performance can be compared with the planned and or desired performance of the business. It can also be compared with the previous performance. Comparison reveals deviation in terms of weaknesses and plus points.

## **6. Making Information to various groups:**

Accounting makes information available to all these interested parties. Proprietors have interest in profit or dividend, debenture holders, lenders and investors are concerned with the safety of money advanced by them to the business and interest thereon. The object of the accounting is to provide meaningful information to all these interested parties.

## **IMPORTANCE / ADVANTAGES OF ACCOUNTING :**

### **1. Replacement of memory:**

In a large business it is very difficult for a business- man to remember all the transactions. Accounting provides records which will furnish information as and when desired and thus it replaces human memory. All financial transactions are recorded in a systematic manner in books of accounts so that there is no need to rely on memory.

### **2. Evidence in court:**

Properly maintained accounts are often treated as good evidence in the court to settle a dispute.

### **3. Settlement of taxation liability:**

If accounts are properly maintained, it will be of great assistance to the businessman in settling the income tax and sale tax liability otherwise tax authorities may impose any amount of tax which the businessman will have to pay.

### **4. Comparative study:**

Accounting provides the facility of comparative study of the various aspects of the business such as profits, sales, expenses etc. with that of previous year and helps the business man to locate significant factor leading to the change, if any. Systematic maintenance of business records enables the accountant to compare the profit of one year with those of earlier year's profits and to know the significant facts about the changes. This helps the business to plan its future affairs accordingly.

### **5. Sale of the business:**

If accounts are properly maintained, it helps to ascertain the proper purchase price in case the businessman is interested to sell his business.

### **6. Assistance to the insolvent person:**

If a person is maintaining proper accounts and unfortunately he becomes insolvent (i.e., when he is unable to pay to his creditors), he can explain many things about the past with the help of accounts and can start a fresh life.

### **7. Assistance to various interested parties:**

It provides information to various interested parties, i.e., owners, creditors, investors, government, managers, research scholars, public and employees and financial position of a business enterprise from their own view point. Various interested parties or groups are interested in accounting information related to various aspects viz., sales, production, profit etc. Accounting provides suitable information to such interested parties.

## **8.Preparation of Financial Statements:**

Systematic records enable the accountant to prepare financial statements. Trading and Profit and Loss account is prepared for calculating profit or loss during a particular period and Balance sheet is prepared to state the financial position of the business on a particular date.

## **9.Decision Making:**

The accountant helps the management by providing the relevant information for solving the day to day problems of the business.

## **10.Planning and Control of Operations:**

Planning operations like sales, production, cash requirements for the next account period are achieved with the help of accounting information and estimates can be prepared based on that information.

## **11.Value of Business:**

Accounting records kept in a proper way enables a business unit to determine the purchase or sale value of the business in a simple manner.

# **LIMITATIONS OR DISADVANTAGES OF ACCOUNTING:**

## **1.Records only monetary transactions:**

Accounting records only those transactions which can be measured in monetary terms. Those transactions which can not be measured in monetary terms as conflict between production manager and marketing manager , office management etc., may be very important for concern but not recorded in the business books.

## **2.Effect of price level changes not considered:**

Accounting transactions are recorded at cost in the books. The effect of price level changes is not brought into the books with the result that comparison of various years becomes difficult. For example, the sales to total assets in 2007 would be much higher than in 2003 due to rising prices, fixed assets being shown at cost and not at market price.

## **3.No realistic information:**

Accounting information may not be realistic as accounting statements are properly prepared by following basic concepts and conventions. For example, going concern concept gives us an idea that the business will continue and assets are to be recorded at cost but the book value which the asset is showing may not be actually realizable. Similarly, by following the principles of conservation the financial statements will not reflect the true position of the business.

## **4.No real test of managerial performance:**

Profit earned during an accounting period is the test of managerial performance. Profit may be shown in excess by manipulation of accounts by suppressing such costs as depreciation, advertisement and research and development or taking excess value of closing stock. Consequently real idea of managerial performance may not be available by manipulated profit.

## **5.Historical in nature:**

Usually accounting supplies information in the form of Profit and Loss Account and Balance Sheet at the end of the year. So, the information provided is of historical interest and only gives post-mortem analysis of the past accounting information. For control and planning purposes management is interested in quick and timely information which is not provided by financial accounting.

## **6.Personal bias / judgment of Accountant affects the accounting Statements:**

Accounting statements are influenced by the personal judgement of the accountant. He may select any method of depreciation, valuation of stock, amortization of fixed assets and treatment of deferred revenue

expenditure. Such judgment based on integrity and competency of the accountant will definitely affect the preparation of accounting statements.

### **7.Permits alternative treatments:**

Accounting permits alternative treatments within generally accepted accounting concepts and conventions. For example, method of charging depreciation may be straight line method or diminishing balance method or some other method. Similarly, closing stock may be valued by FIFO(First-in-First Out) or LIFO(Last in First Out) or Average Price Method. Application of different methods may give different results and results may not be comparable.

## **DOUBLE ENTRY SYSTEM**

- Double entry system is a scientific way of presenting accounts.
- As such all the business concerns feel it convenient to prepare the accounts under double entry system.
- The taxation authorities also compel the businessmen to prepare the accounts under Double Entry System.
- Under dual aspect the Account deals with the two aspects of business transaction i.e., (1) Receiving Aspect and (2) Giving Aspect.
- Receiving Aspect is known as Debit aspect and Giving Aspect is known as Credit aspect.
- Under which system these two aspects of transactions are recorded in chronological manner in the books of the business concern is known as Double Entry System.
- In Double Entry System these two aspects are recorded facilitating the preparation of Trial Balance and the Final Accounts there from.

## **PRINCIPLE OF DOUBLE ENTRY SYSTEM**

- Every business transaction has got two accounts, where one account is debited and the other account is credited.
- If one account receives a benefit, there should be another account to impart/give the benefit.
- The principle of Double Entry is based on the fact that there can be no giving without receiving nor can there be receiving without something giving.
- The receiving account is debited (i.e., entered on the debit side of the account) and the giving account is credited (i.e., entered on the credit side of the account).
- The principle under which both debit and credit aspects are recorded is known as the principle of double entry.
- According to this principle every debit must necessarily have a corresponding credit and vice versa

## **ADVANTAGES OF DOUBLE ENTRY SYSTEM**

### **1.Scientific system:**

Double entry system records, classifies and summarizes business transactions in a systematic manner and, thus, produces useful information for decision makers. It is more scientific as compared to single entry of book-keeping.

### **2.Full Information:**

Full and authentic information can be had about all transactions as the trader maintains the ledger with all types of accounts.

### **3.Assessment of Profit and Loss:**

The businessman/trader will be able to know correctly whether he had earned profit or sustained loss. It facilitates the trader to take such steps so as to increase the efficiency of the firm.

### **4.Knowledge of Debtors:**

The trader will be able to know exactly what amounts are owed by different customers to the firm. If any amount is pending for a long time from any customer, he may stop credit facility to that customer.

### **5.Knowledge of Creditors:**

The trader is also knows the exact amounts owed by the firm to others and he will be able to arrange prompt payment to obtain cash discount.

### **6.Arithmetical Accuracy:**

The arithmetical accuracy of the books can be proved by the trial balance.

### **7.Assessment of Financial Position:**

The trader will be able to prepare the Balance Sheet which will help the interested parties to know fully about the financial position of the firm.

### **8.Comparison of Results:**

It facilitates the comparison of current year results with those of previous years.

### **9.Maintenance according to Income Tax Rules:**

Proper maintenance of books will satisfy the tax authorities and facilitates accurate assessment. In India Joint stock companies should maintain accounts under double entry system.

### **10.Detection of Frauds:**

The systematic and scientific recording of business transactions on the basis of this system minimizes the chances of embezzlement and frauds or errors. The frauds or errors can be easily detected by vouching, verification and auditing of accounts.

## **DISADVANTAGES OF DOUBLE ENTRY SYSTEM**

The Double Entry System however may not provide any solution to the following errors.

### **1.Not Practical to All Concerns:**

This system requires the maintenance of a number of books of accounts which is not practical in small concerns.

### **2.Costly system:**

This system is costly because of a number of records are to be maintained.

### **3.No guarantee of Absolute Accuracy of the Books of Account:**

There is no guarantee of absolute accuracy of the books of account inspite of agreement of the trial balance because of there are some errors like errors of principles, errors of omission, compensating errors etc., which remain understand inspite of agreement of trial balance.

### **4.Errors of Omission:**

In case the entire transaction is not recorded in the books of accounts, the mistake cannot be detected by accounting. The Trial Balance will tally inspite of the mistakes.

### **5.Errors of Principle:**

Double entry is based upon the fact that every debit has its corresponding credit and vice versa. It will not be able to detect the mistake such as debiting Ram's account instead of Rao's account or Building account in place of Repairs account.

### **6.Compensating Errors:**

If Rahim's account is by mistake debited with Rs. 15 lesser and Mohan's account is also by mistake credited with Rs.15 lesser, the Trial Balance will tally but mistake will remain in accounts.

## **THE FUNCTIONS / SCOPE OF FINANCIAL ACCOUNTING:**

The various functions of accounting are as follows:

### **1. Systematic record of business transactions / Recording:**

Recording is the basic function of accounting. Accounting records business transactions in terms of money. It is essentially concerned with ensuring that all business transactions of financial nature are properly recorded. Recording is done in Journal or subsidiary books in chronological order. To keep systematic record of transactions, post them into ledger and ultimately to prepare the final accounts is the first function of accounting.

### **2. Classifying:**

Accounting also facilitates classification of all business transactions recorded in the journal. Items of similar nature are classified under appropriated heads. It deals with classification of recorded transactions so as to group similar transactions at one place. The work of classification is done in a book called the Ledger, where similar transactions are recorded at one place under individual account heads. Eg. In sales account all sale of goods are recorded. In purchases account all purchase of goods are recorded.

### **3. Summarizing:**

It involves presenting classified transactions in a manner useful to both its internal and external users. It involves preparation of financial statements i.e profit& loss account and Balance sheet etc., Accounting summarizes the classified information. This process leads to the preparation of Trial balance, Income statement and balance sheet.

### **4. Analyzing:**

The recorded data in financial statement is analyzed to make useful interpretation. The figures given in financial statements need to be put in a simplified manner. Eg. All items relating to fixed assets are placed at one place while long term liabilities are placed at one place.

### **5. Interpretation:**

It deals with explaining the meaning and significance of the data simplified. The accountants should interpret the statements in a manner useful to the users. Interpretation of data helps management, outsiders and shareholders in decision making. It aims at drawing meaningful conclusions from the information. Different parties can make meaningful judgments about the financial condition and profitability of business operations.

### **6. Communicating Results to Interested Parties:**

Accounting also serves as an information system. It is the language of the business. It supplies the meaningful information about the financial activities of the business to varies parties i.e., owners, creditors, investors, employees, government, public, research scholars and managers at the right time. It is a service function. It is not an end itself but a means to an end. It involves preparation and distribution of reports to the users to make decisions.

### **7. Compliance with legal requirements:**

The accounting system must aim at fulfilling the requirements of law. Under the provisions of law, the business man has to file various statements such as income-tax returns, sales tax returns etc.

### **8. Protecting the property of the business:**

For performing this function the accountant is required to devise such a system of recording information so that assets of the business are not put to wrong use and a complete record of the assets of the concern is available without any difficulty.

## ACCOUNTING CONCEPTS

- Account is a system evolves to achieve a set of objectives.
- In order to achieve the goals, we need a set of rules or guide lines.
- These guide lines are termed as “Basic accounting concepts”.
- **The term concept means an idea or thought.**
- Basic accounting concepts are the **fundamental ideas or basic assumptions underlying theory and practice of financial accounting.**
- These concepts are termed as “**generally accepted accounting principles**”.
- These are broad **working rules of accounting activity**.
- They are evolved over a period in response to changing business environment.
- They are developed and accepted by accounting profession.
- The concepts guide the identification of events and transactions to be accounted for.
- The concepts help in bringing about uniformity in the practice in accounting.

In accountancy following concepts are quite popular.

### 1. Business Entity Concept:

- ***Business is treated separate from the proprietor.***
- All the transactions are recorded in the books of the proprietor.
- The proprietor is also treated as a creditor for the business.
- When he contributes capital, he is treated as a person who has invested his amount in the business.
- Therefore, capital appears in the liabilities of balance sheet of the proprietor.

#### Effects of this Concept:

- a) Financial position of the business can be easily found out.
- b) Earning position of the business can be easily ascertained.

### 2. Going Concern Concept:

- ***This concept relates with the long life of the business.***
- The assumption is that business will continue to exist unlimited period unless it is dissolved due to some reason or the other.
- When final accounts are prepared, record is made for outstanding expenses and prepaid expenses because of the assumption that business will continue.
- Going concern concept helps other business undertaking to make contracts with specific business unit for business dealing in future.

#### Effects of this concept:

- a) Working life of asset is taken into consideration for writing of depreciation because of this concept.
- b) Accountant always remains hopeful about continuity of the business. Therefore, he does not stop writing transactions even though the condition of business is deteriorating.

### 3. Money Measurement Concept:

- ***Only those transactions are recorded in accounting which cannot be expressed in terms of money.***
- The transactions which cannot be expressed in money fall beyond the scope of accounting.

- One serious short coming of this concept is that the money value of that date is recorded on which transaction has taken place.
- It does not recognize the changes in the purchasing power of monetary unit.

#### **Effects of this concept:**

a) In the absence of this concept, it would have not been possible to add various processes.

**For example :** A proprietor has 40 chairs, 50 tables, 15 machines and 20 acres of land. He cannot add them. But total amount of all these processes can be easily found out by finding out their value in money.

b) It fails to keep any record of such matters which cannot be expressed in terms of money.

**For example:** ability of the board of directors, quality of the articles produced and efficiency of workers cannot be recorded.

#### **4.Cost Concept:**

- *According to this concept, an asset is recorded at its cost in the books of account, i.e., the price, which is paid at the time of acquiring it.*
- In balance sheet, these assets appear not at cost price every year, but depreciation is deducted and they appear at the amount, which is cost less depreciation.
- Under this concept, all such events are ignored which affect the business but have no cost.
- For example, if an important and influential director dies, then the earning capacity and position of the business will be affected. But this event has no cost. Hence it will not be recorded in account books.

#### **Effects of this concept:**

a) Under this concept market price is ignored. Balance sheet indicates financial position on cost and expired cost less.

b) This concept is mainly for fixed assets. Current assets are not affected by it. Current assets appear in balance sheet at cost or market price whichever is lower. But both these assets are acquired at cost price.

#### **5.Account Period Concept:**

- *Every businessman wants to know the result of his investment and efforts after a certain period.*
- Usually one-year period is regarded as an ideal for this purpose.
- The life of the business is considered to be indefinite, but the measurement of income cannot be postponed for a very long period of time.
- Therefore, it is necessary to have a period for which the operational results are assessed for external reporting.
- *Hence a period of one year i.e., twelve months is considered as accounting period.*
- It may be a calendar year (January to December or any period of one year.)
- In India, the accounting period begins on 1st April every year and ends on 31st March every year.
- This concept implies that at the end of each accounting period, financial statements i.e., profit & loss account and balance sheet are to be prepared.
- It is mandatory under Income Tax Act to assess profit of the business every year and determine tax liability.

#### **Effects of this concept:**

a) Financial position and earning capacity of one year maybe compared with another year.

b) These comparisons help the management in planning and increasing the efficiency of business.

## **6.Dual Aspect Concept:**

- Under this concept, every transaction has got a twofold aspects i.e., (i) receiving aspect/ receiving benefit and (ii) giving aspect/ giving of benefit.
- For instance, when a firm acquires an asset (receiving of the benefit), it must have to pay cash (giving of benefit).
- Therefore, two accounts are to be passed in the books of accounts. One for the receiving benefit and the other for the giving of benefit.
- Thus, there will be a double entry for every transaction – debit for receiving the benefit and credit for giving the benefit.

### **Effects of this Concept:**

- a) This concept is of great help in indicating the true position of the business.
- b) This concept helps in detecting the errors of employees and in having strict control over them.
- c) The accounting equation, i.e., Assets= Equities (or liabilities + capital) is based on this concept.

## **7.Matching Concept:**

- Every businessman is eager to make maximum profit at minimum cost. Hence, he tries to find out revenue and cost during the accounting period.
- An accountant records all expenses of a year (whether they are paid in cash or are outstanding) and all revenues of a year (whether they are received in cash or accrued).
- Expenses, which are incurred during a particular accounting period for earning the revenue of the related period, are to be considered.
- All expenses incurred during the accounting period must not be taken. Only relevant cost should be deducted from the revenue of a period for periodic income statement. ***The process of relating costs to revenue is called “Matching process”.***
- While ascertaining profit, other appropriate cost which are not directly related to cost of goods sold are to be taken into consideration. Example, rent paid, interest paid, depreciation etc., Thus appropriate costs have to be matched against the appropriate revenues for the accounting period.

### **Effects of this Concept:**

- a) Proprietor can easily know about his profit or loss.
- b) On the basis of this concept, he can make efforts to create economy, increasing efficiency and increasing his income.

## **8.Realisation Concept:**

- This concept is also known as “revenue recognition concept”.
- Revenue results out of sale of goods and services.
- According to this concept revenue is realized when a sale is made.
- Sale is considered to be made at the point when the property in goods passes to the buyer and he becomes legally liable to pay.
- No profit or income will arise without the realization of sales.
- Likely sales and anticipated revenues are not to be recorded in account books.
- The realization concept is important in ascertaining the exact profit earned during a period in a business concern.
- ***According to this concept, the revenue should be considered only when it is realized.***

- Any business transaction should be recorded only after it actually taken place.
- Production of goods does not mean that the total production is sold, it should be recorded only when they are sold and cash realized or obligation created.

#### **9.Objectivity Concept:**

- *This concept implies that all accounting records should be supported by proper documents.*
- Cash memos, invoices, correspondence, agreements, vouchers, etc., are examples of business documents.
- These documents supply the information. They form the basis for record of entries in the books of account.
- Accounting record based on documentary evidence is readily and objectively verifiable.

#### **10.Accrual Concept:**

- *This concept implies that revenue is recognized in the period in which it is earned irrespective of the fact whether it is received or not during the period.*
- For example, commission Rs.2,000 earned in the year 2008, but received in cash in the year 2009, then the commission is to be taken as income for the year 2008 only, not as income of the year 2009.

### **ACCOUNTING CONVENTIONS :**

In accounting, **convention means a custom or tradition, used as a guide for the preparation of accounting statement.** The following are the accounting conventions:

#### **1.Convention of Full Disclosure:**

- *Accounting to this convention, accounts should be prepared honestly and they should disclose all materials and significant information.*
- Every company shall keep proper books of accounts. Auditor records expenses, incomes, profits, losses, assets and liabilities.
- The essential items to be disclosed in the Profit and Loss Account are given. There is legal form for the balance sheet.

#### **2.Convention of Consistency:**

- In every business, the management draws important conclusion from the financial statements, regarding working of the concern, for this purpose in preparing the final accounts.
- *The same principle and practices should be followed from year to year.*

#### **3.Convention of Conservation:**

- This is very important in preparing final accounts. This term suggests caution.
- *All prospective profits should be ignored. All outstanding expenses should be taken into account.*
- Adequate reserves or provisions should be provided for.
- This means that there should be no window dressing and secret reserves.

#### **4.Convention of Materiality:**

- This is also called the convention of reasonable degree of accuracy.
- According to this, the information given in the accounts should be reasonable accurate.
- All the entries should be exact. *Fraction of a rupee is avoided.*

## 5. Convention of Relevance:

- As per this convention, ***the firm should give relevant accounting information whenever required with documentary evidence*** like, purchases or sales invoices, vouchers etc., as documentary proof of a transaction.

## ACCOUNTING PROCESS:

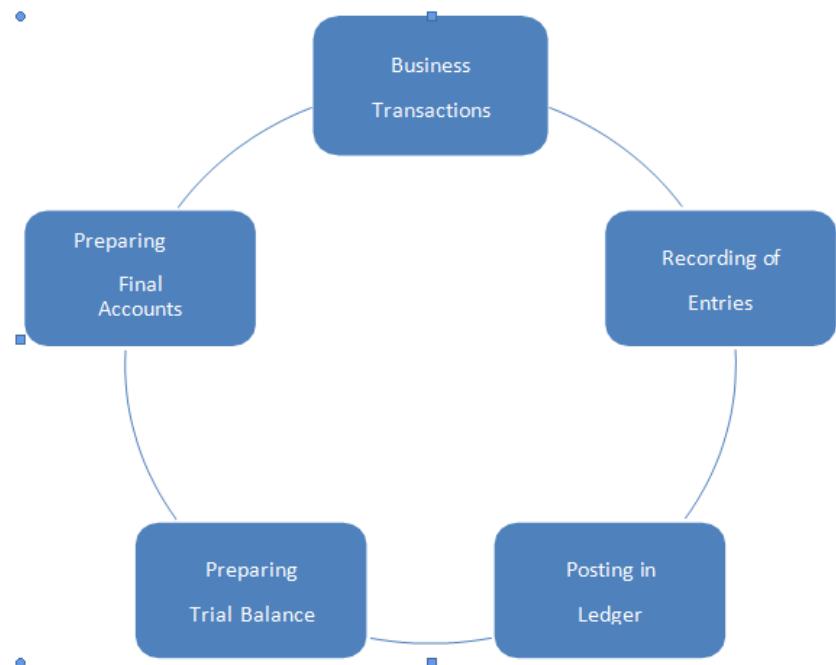
Accounting Process consists of the following stages:

- Recording of entries for all business transactions in Journal.
- Posting of entries into Ledger.
- Balancing of accounts.
- Preparing of Trial Balance with the help of different accounts to know the arithmetical accuracy.
- Preparing final accounts with the help of Trial Balance.
- Trading and Profit and Loss Account is prepared to know the Profit or Loss.
- Balance Sheet is prepared to know the financial position of the Business concern.

**Accounting Process is also known as accounting cycle.**

## ACCOUNTING CYCLE : ( STEPS IN ACCOUNTING CYCLE )

An Accounting cycle is a complete sequence beginning with the recording of the transactions and ending with the preparation of the final accounts. The sequential steps involved in an accounting cycle are as follows:



**Accounting Cycle Chart:**

**Step 1:** Journalizing: Record the transactions and events in the Journal.

**Step 2:** Posting: Transfer the transactions in the respective accounts opened in the Ledger.

**Step 3:** Balancing: Ascertain the difference between the total of debit amount column and the total of credit amount column of a ledger account.

**Step 4:** Trial Balance: Prepare a list showing the balance of each and every account to verify whether the sum of the debit balances is equal to the sum of the credit balances.

**Step 5:** Income Statement: Prepare Trading and Profit and Loss account to ascertain the profit or loss for accounting period.

**Step 6:** Position Statement/Balance Sheet: Prepare the Balance Sheet to ascertain the financial position as at the end of accounting period.

## **CLASSIFICATION OF ACCOUNTS WITH ITS PRICLIPLES OR RULES:**

### **Meaning of an Account:**

- An account is a classified summary of business transactions relating to a particular person or property or an income or an expense Or An Account is a classified record of business transactions which are relating to a particular person or an Item or a thing.
- It is vertically divided into two halves/parts.
- It is prepared in the form of Alphabet T.
- The left side of this account is known as Debit side and right side of the account is known as Credit side.
- Debit is the Receiving Aspect / Benefit and Credit is the Giving Aspect / Benefit.
- The word Dr should be written at the top left hand corner side of the account.
- The word Cr should be written at the top right hand corner side of the account.
- The title or name of the account should be written at the top in the middle of the account.
- The word ‘To’ should be written on the debit side of an account in the particulars column.
- The word ‘By’ should be written on the credit side in the particulars column of an account.
- All the Receiving Aspects are entered on the debit side and all the Giving Aspects are entered on the credit side of the account in the particulars column.
- All accounts are maintained in Ledger. So they are called “Ledger accounts”.

## **CLASSIFICATION OF ACCOUNTS**

Broadly speaking accounts are classified into two types. They are

- I. Personal Accounts
- II. Impersonal Accounts.

Impersonal accounts are again divided into Real Accounts and Nominal Accounts.

Thus accounts are of Three types.

1. Personal Accounts
2. Real Accounts
3. Nominal Accounts

Real and Nominal Accounts are collectively called “Impersonal Accounts”.

## **1. Personal Accounts:**

- Personal Accounts are those which are opened in the names of persons.
- ***These are accounts of persons and institutions with whom the business deals.***
- A separate account is kept for each person.
- Personal accounts can be also sub classified into three categories:  
They are i) Natural personal accounts  
ii) Artificial Personal accounts  
iii) Representative Personal accounts.

### **i) Natural Personal Accounts:**

- The term Natural Persons means who are creations of Gods.
- For example Ravi Account, Rani Account, Raghu account Nagarjuna Account etc., are called as Natural Personal Accounts.

### **ii) Artificial Personal Accounts:**

- These accounts include accounts of corporate bodies or institutions which are recognized as persons in business dealings.
- For Example : The account of a Limited Company, the accounts of co-operative society, the accounts of clubs, the account of Government, the account of insurance company, the account of Colleges, Schools, Universities and Hotels etc., are examples of Artificial Personal Accounts.

### **iii) Representative Personal Accounts:**

- These are accounts which represent a certain person or group of persons.
- For example, Outstanding expenses A/c, Prepaid expenses A/c, Income Receivable A/c and Income received in advance A/c, Drawings A/c and Capital A/c are termed as Representative Accounts.

### **❖ Principle/ Rule of Personal Account:**

**DEBIT THE RECIEVER  
CREDIT THE GIVER**

For example, **if cash has been paid to Raja**, the account of Raja will have to be debited since Raja is the receiver of cash.

Similarly, **if cash received from Krishna**, the account of Krishna will have to be credited since Krishna is the giver of cash.

## **2. Real Account:**

- ***Real Accounts are those which are relating to Properties and Assets of the business concern.***
- Accounts relating to properties or assets or possessions of the firm are called Real Accounts.
- Every business firm needs Fixed Assets such as Land and Buildings, Plant and Machinery, Furniture and Fixtures etc for running its business. A separate account is maintained for each asset.

There are Four types of Assets. They are

### **i) Fixed Assets:**

- ***Those assets which are acquired for long term use by the business concern are known as Fixed assets.***
- For example Land and Buildings, Plant and Machinery, Furniture and Fixtures etc are called as Fixed Assets.

### **ii) Current Assets:**

- Those assets which are possible to convert into cash are known as known as *Current assets*.
- For example cash in hand, cash at Bank, Stock in trade, Debtors, Bills Receivable etc., are called as current assets.

### **iii) Tangible Assets:**

- Tangible assets are those which relate to such things which can be touched, felt, measured etc., Tangible assets have physical existence.
- Hence these assets may be transferred from one place to another place. ***Fixed assets and Current assets are the examples of Tangible assets.***

### **iv) Intangible Assets:**

- These accounts represent such things which cannot be touched.
- Of course, they can be measured in terms of money. Intangible assets haven't any physical existence.
- Goodwill, copy rights, patents and trademarks are the examples of Intangible assets.

#### **❖ Principle/Rule of Real Account:**

**DEBIT WHAT COMES INTO THE BUSINESS  
CREDIT WHAT GOES OUT OF THE BUSINESS**

For example, **if machinery has been purchased for cash**, machinery account should be debited since Machinery is coming into the business, while cash account should be credited since cash is going out of the business.

Similarly, **If furniture is sold for cash**, cash account should be debited since cash is coming into the business, while Furniture account should be credited since furniture is going out of the business.

### **3. Nominal Accounts:**

- **Nominal accounts include accounts of all Expenses, Losses, Incomes and Profits or Gains.**
- **The examples of Expenses and Losses** are salaries, wages, rent, taxes, lighting charges, transport charges, travelling charges, coolie charges, warehouse rent, insurance, advertisement paid, Bad debts, commission paid, Discount allowed, interest paid, interest paid on capital,
- **The examples of Incomes and Profits** are rent received, interest received, commission received, discount received, dividend received, interest on investment received, bad debts recovered etc.,
- These accounts are opened in the books to simply explain the nature of the transactions. They do not really exist.
- For example, in a business when salary is paid to the manager, commission is paid to the salesmen, rent is paid to landlord, cash goes out of the business and it is something real, while salary, commission, or rent as such does not exist.
- The accounts of these items are opened simply to explain how the cash has been spent. In the absence of such information, it may be difficult for the cashier to explain how the cash at his disposal was utilized.
- Nominal accounts are also called Fictitious Accounts.

#### **❖ Principle or Rule of Nominal Account:**

**DEBIT ALL EXPENSES AND LOSSES  
CREDIT ALL INCOMES AND GAINS.**

For example **when salaries paid in cash**, salaries account should be debited since Salaries is an expenditure to the business, while cash account should be credited since cash is going out of the business.

For example **If Rent received in cash**, Cash account should be debited since cash is coming into the business, while rent account should be credited since Rent Received is an income to the business.

- The principle of Nominal account is quite opposite to the principles of personal account and real account.
- As per the principle of Nominal account receiving aspects (Incomes and profits) are credited and giving aspects (expenses and losses) are debited.
- But as per the principles of personal account and real account, receiving aspect is debited and giving aspect is credited.
- Hence the rule of Nominal account is different from the principles of Real account and Nominal account.

## JOURNAL

### Journal Meaning :

- The word Journal is derived from the French word ‘Jour’ which means a day.
- Journal, therefore, means a daily record of business transactions.
- Journal is a book of original entry/prime entry because transaction is first written in the journal from which it is posted to the ledger at any convenient time.
- The journal is a complete and chronological record of business transactions.
- It is recorded in a systematic manner.
- The process of recording a transaction in the journal is called Journalizing.
- The entries made in the book are called Journal Entries.

### Proforma of Journal

Journal Entries in the books of-----

Date	Particulars	L.F	Debit (Rs.)	Credit (Rs.)

### **ADVANTAGES / IMPORTANCE OF JOURNAL:**

The main advantages of Journal are given below:

#### **1. Availability of Full information/Complete Record:**

All business transactions date-wise will be recorded in the Journal As such the total information for every transaction can be obtained very easily without late. So Journal serves as a complete record. It provides a chronological record of all transactions and hence provides permanent record.

## **2.Posting becomes easy:**

When once the transactions are entered in the Journal, recording the same in the relevant accounts in the ledger can be made easily. The businessman can have an understanding on debit and credit principles in the beginning itself. It provides information of debit and credit in an entry and an explanation to make it understandable properly.

## **3.Explanation of the transaction:**

Every Journal entry will be briefly explained with a narration. Narration helps in proper understanding of the entry.

## **4.Location of the errors easy:**

Journal helps to locate the errors easily. Both debit and credit aspects of a transaction are recorded in the journal. Since the amount recorded in debit amount column and credit amount column must be equal. Therefore, the possibility of committing errors is reduced and the detection of errors, if any, committed becomes easy.

## **5.Chronological order:**

Transactions are recorded in a chronological order in the Journal. Hence, when any information is required, the information can be traced out quickly and easily.

## **6.Eliminates the need for reliance on memory:**

It eliminates the need for a reliance on memory of the accounts keeper. Some transactions are of a complicated nature and without the journal, the entries may be difficult, if not impossible.

## **7.Journal provides information relating to the following aspects:**

- (a) Credit sale and purchase of fixed assets, investment or any thing else not dealt in by the firm.
- (b) Special allowances received from suppliers or given to the customers.
- (c) Writing off extra-ordinary losses viz. losses due to fire, earth quakes, theft etc., and bad debts.
- (d) Recording in the reduction of the assets i.e., depreciation.
- (e) Receipt and issue of bills of exchange, promissory notes, hundies and their dishonour, renewal
- (f) Transactions with Bank(unless bank column added to the cash book)
- (g) Income earned but not received in cash.
- (h) Expenses incurred but not yet paid for in cash and other similar adjusting entries.
- (i) Transfer entries viz. posting total of subsidiary books to the respective impersonal accounts in the ledger at the end of every month, transfer of gross profit or loss to the Profit & Loss A/c and net profit or net loss and also drawings A/c to the Capital A/c at the end of the trading period.
- (j) Closing entries-entries to close the books at the time of preparing trading and profit & loss account.

## **LIMITATIONS / DISADVANTAGES OF JOURNAL:**

The following are the main limitations of the journal.

- 1.The Journal will be too long and becomes unwieldy if all transactions are recorded in the journal.
- 2.The Journal is unable to ascertain daily cash balance. That is why cash transactions are directly recorded in a separate cash book so that daily cash balances may be available.
- 3.It becomes difficult in practice to post each and every transaction from the Journal to the ledger. Hence in order to make the accounting easier and systematic, transactions are recorded in total in different books.

## CLASSIFICATION OF ACCOUNTS – SOME EXAMPLES

<i>Sl. Personal accounts No (Natural persons / Artificial persons)</i>	<i>Real accounts (Assets)</i>	<i>Nominal accounts (expresses incomes, losses gains)</i>
1. Ramaiah's account (Natural)	Buildings A/c (Tangible)	Salaries A/c (Expense)
2. David's A/c (Natural)	Machinery A/c (Tangible)	Wages A/c (Expense)
3. Canara Bank A/c (Artificial)	Furniture A/c (Tangible)	Interest paid A/c (Expense)
4. Hero Honda Company A/c	Goodwill A/c (Intangible) (Artificial)	Commission received A/ (Income)
5. Life Insurance Company A/c (Artificial)	Patents A/c (Intangible)	Insurance premium A/c (Expense)
6. Capital A/c (Owner, natural)	Investments A/c	Discount allowed A/c (loss)
7. Drawings A/c (Owner, natural)	Loose tools A/c	Discount received A/c (Gain)
8. Salary payable A/c (*)	Land A/c	Loss by fire/Abnormal loss A/c (loss)
9. Commission receivable A/c (*)	Cash A/c	Bad debts recovered A/c (gain)
10. Rent Received in Advance A/c (*)	Premises A/c	Sales A/c (Income)
11. Insurance paid in Advance A/c (*)	Live stock A/c	Purchases A/c (Expense)

(\*) These accounts come under personal account, as these are to be paid to various persons or to be received from various persons. Hence, these accounts are known as representative personal accounts.

A journal is a book in which transactions are recorded in the order in which they occur i.e. chronological order. A journal is called a book of prime entry or original entry, because all the business transactions are entered first in this book. The process of recording a transaction in journal is called 'journalizing'. The entry made in the journal is called journal entry.

#### THE FORMAT OF A JOURNAL IS SHOWN BELOW

Date	Particulars	L.F.	Debit Amount Rs.	Credit Amount Rs.
1	2	3	4	5

#### **EXPLANATION**

##### **1. Date Column**

In this column the date on which the transaction took place is entered. The transactions must be recorded in chronological order, i.e. transactions are to be entered date wise. The year and month is written once, till they change.

##### **2. Particulars Column**

In this column the names of the accounts to be debited is written in the first line and then the names of the account to be credited is recorded in the second line. They are followed by Narration given in the brackets. Narration is a brief explanation of the transaction entered.

##### **3. L.F. column**

This is called ledger folio column. In this column the page number of the ledger will be entered when it is posted into its relevant account in the ledger. This helps in verification of books of account in case of any error.

##### **4. Debit Amount Column**

In this column the amount to be debited is written.

##### **5. Credit Amount Column**

In this column the amount to be credited is written. The amount is in Rupees in INDIA, in Dollars in AMERICA etc.

**Note:** Except, the ledger folio column, all other columns are recorded at the time of journal entry.

### **4.3 Points to be Considered Before Journalizing**

As you know every transaction has two aspects i.e. debit and credit. The debit and credit aspects are to be recorded in the journal based on the principle of double entry. The process of recording a transaction in the journal is called journalizing. The various steps to be followed in journalizing are given below.

#### **Steps in Journalizing**

- Step-1: Ascertain the accounts involved in the transaction.
  - Step-2: Ascertain the nature of account involved i.e. real account, or personal account or nominal account.
  - Step-3: Ascertain which rule of debit and credit is applicable for each of the account involved.
  - Step-4: Ascertain which account is to be debited and which account is to be credited.
  - Step-5: Record the date of transaction in the date column.
  - Step-6: Write the name of the account to be debited very close to left hand side with the abbreviation 'Dr' on the same line in the extreme right hand side of particulars column. The amount to be debited is written in the debit amount column in the same line against the name of account.
  - Step-7: Write the name of the account to be credited in the next line. It should be preceded by the word 'To' at a few spaces towards right in the particulars column and the amount to be credited in the credit amount column against the name of the account.
  - Step-8: Write the 'Narration' (brief explanation of the transaction) with in the brackets in the next line in the particulars column.
- Step-9:** Draw a line across the entire 'particulars column' to separate one entry from the other. The line should be drawn only in the particulars column.

**Note:** *The word a/c should be suffixed to both debit and credit aspects of journal entry.*

The following illustration clarifies the above process of journalising.

**DOUBLE ENTRY SYSTEM - ANALYSIS OF TRANSACTIONS - APPLICATION OF DEBIT AND CREDIT- SOME EXAMPLES.**

Last page of Chapter - 3

Sl. No	Transaction	Two aspects		Nature	Type of account	Principle of Dr/Cr	Account to be Debited	Account to be Credited
		2	3					
1.	Purchase of goods for cash Rs 5000/-.	a) Purchase of goods b) Cash	3 Purchase of goods	4 Expense Asset	5 Nominal a/c Real a/c	6 Debit all expenses Credit what goes out	7 Purchase A/c Rs 5000	8 Cash a/c Rs. 5000
2.	Purchase of goods from Ram on Credit for Rs 3000/-.	a) Purchase of goods b) Ram (Giver)	3 Purchase of goods	4 Expense Asset	5 Nominal a/c Personal a/c	6 Debit all expenses Credit the giver	7 Purchase A/c Rs. 3000	8 Ram's a/c Rs. 3000
3.	Purchased office furniture for cash Rs.4000/-.	a) Purchase of furniture b) Cash paid	3 Purchase of furniture	4 Asset Person	5 Real a/c Real a/c	6 Debit what comes in Credit what goes out	7 Furniture A/c Rs 4000	8 Cash a/c Rs. 4000
4.	Purchase of Machine on credit from XYZ company Rs 2000	a) Purchase of machine b) XYZ company (giver)	3 Purchase of machine	4 Asset Person (Artificial)	5 Real a/c Personal a/c	6 Debit what comes in Credit the giver	7 Machine A/c Rs 2000	8 XYZ company Rs.2000
5.	Cash brought in by owner Mr.Ganesh Rs.10000 towards capital / investment	a) Cash received b) Ganesh gives capital	3 Cash received	4 Asset Person	5 Real a/c Personal a/c	6 Debit what comes in Credit the giver	7 Cash a/c Rs.10000	8 Ganesh's capital a/c Rs.10,000
6.	Goods sold for cash Rs.9000	a) Cash received b) Goods sold [Sales]	3 Goods sold	4 Asset Income	5 Real a/c Nominal a/c	6 Debit what comes in Credit all incomes	7 Sales a/c Rs.9000	8 Sales a/c Rs.9000
7.	Goods sold on credit to Mr.Narayana for Rs.8000	a) Narayana received goods b) Goods sold	3 Goods sold	4 Person Income	5 Personal a/c Nominal a/c	6 Debit the receiver Credit all incomes	7 Narayana A/c Rs. 8000	8 Sales a/c Rs.8000
8.	Salaries paid Rs.1800 in cash	a) Salaries b) Cash	3 Salaries	4 Expense Asset	5 Nominal a/c Real a/c	6 Debit all expenses Credit what goes out	7 Salaries A/c Rs.1800	8 Cash a/c Rs.1800
9.	Commission received in cash Rs.500	a) Cash received b) Commission earned	3 Commission earned	4 Asset Income	5 Real a/c Nominal a/c	6 Debit what comes in Credit all incomes	7 Cash a/c Rs.500	8 Commission a/c Rs.500
10.	Cash paid to Ramesh Rs 1000	a) Ramesh (receiver) b) Cash goes out	3 Person Asset	4 Personal a/c Real a/c	5 Debit the receiver Credit what goes out	6 Ramesh a/c Rs.1000	7 Cash a/c Rs.1000	8 Cash a/c Rs.1000
11.	Interest paid Rs.600	a) Interest (Exp.) b) Cash paid	3 Expense Asset	4 Nominal a/c Real a/c	5 Debit all expenses Credit what goes out	6 Interest a/c Rs.600	7 Cash a/c Rs.600	8 Cash a/c Rs.600
12.	Cash received from Sathish Rs.1500	a) Cash received b) Sathish (giver)	3 Asset Person	4 Real a/c Personal a/c	5 Debit what comes in Credit the giver	6 Cash a/c Rs.1500	7 Sathish a/c Rs.1500	8 Purchase returns a/c Rs.200
13.	Goods returned to Ravi Rs.200 our supplier	a) Goods returned (purchase returns) b) Ravi received	3 Income (Reduction of exp.) Person	4 Nominal a/c Personal a/c	5 Credit all incomes Debit the receiver	6 Ravi's a/c Rs.200	7 Purchase returns a/c Rs.200	8 Purchase returns a/c Rs.200
14.	Goods returned by Mohan Rs.300 our customer.	a) Mohan (giver) b) Goods recovered back (Sales returns)	3 Person Asset	4 Nominal a/c Personal a/c	5 Credit the giver Debit all expenses	6 Sales returns a/c Rs.300	7 Mohan's a/c Rs.300	8 Mohan's a/c Rs.300
15.	Cash taken by owner (Ganesh) Rs.100 for personal use	a) Ganesh (receiver) b) Cash paid	3 Person Asset	4 Real a/c	5 Debit the receiver Credit what goes out	6 Ganesh's Drawings a/c Rs.100	7 Cash a/c Rs.100	8 Cash a/c Rs.100

Note:

Goods purchased is expenditure and a goods sold is income, both are Nominal accounts. Capital a/c is a personal a/c, drawings a/c also a personal account. As business is separate from owner,

capital Contributed by owner is to be returned when business is closed, and a drawings is the amount receivable from owner.

### Illustration

From the following transactions of Mr.Ganesh find out the nature of accounts and also state which account is to debited and credited and also give journal entries.

Sl.No	Date	Description
a.	2008 Jan., 01	Ganesh commenced business with cash Rs.20,000/-
b.	" 02	Purchased furniture for Rs.1,000/-
c.	" 03	Borrowed from Mr. Raju Rs.2,000/-
d.	" 04	Purchase of goods on credit from Mr.Mohan Rs.800/-
e.	" 05	Sold goods to Mr.Rajesh on.Credit Rs.2,500/-
f.	" 06	Purchased goods for cash Rs.900/-
g.	" 06	Sold goods for cash Rs.5,000/-
h.	" 08	Cash deposited into bank Rs.1,000/-
i)	" 09	Rent paid Rs.400/-
j)	" 10	Withdrew cash for personal use Rs.500/-
k)	" 11	Received commission Rs.200/-
l)	" 12	Received cash from Mr.Santosh Rs.2,100/-
m)	" 13	Interest paid on loan Rs.300/-
n)	" 14	Outstanding salary Rs.100/-
o)	" 15	Paid to Mr.Sudeer Rs.600/-
p)	" 16	Goods withdrawn for personal use Rs.700/-
q)	" 19	Received a cheque from Mr.Rao, a customer Rs.1,000/-
r)	" 25	Issued a cheque to Mr.Manoj, a supplier Rs.1,200/-
s)	" 28	Interest allowed by bank Rs.200/-
t)	" 31	Withdrew from bank for office use Rs.300/-

### ANALYSIS OF TRANSACTIONS

<i>Tran saction</i>	<i>Account involved</i>	<i>Nature of account</i>	<i>How affected</i>	<i>Debit / Credit</i>
a.	Cash A/c	Real	Cash is coming in.	Debit
	Ganesh's capital A/c	Personal	Ganesh is giver of capital	Credit
b.	Furniture A/c	Real	Furniture is coming in	Debit
	Cash A/c	Real	Cash is going out	Credit
c.	Cash A/c	Real	Cash is coming in	Debit
	Loan from Raju's A/c	Personal	Raju is giver	Credit
d.	Purchases A/c	Nominal	Purchase is an expense	Debit
	Mohan's A/c	Personal	Mohan is giver	Credit
e.	Rajesh's A/c	Personal	Rajesh is receiver	Debit
	Sales A/c	Nominal	Sales is income	Credit
f.	Purchases A/c	Nominal	Purchases is an expenses	Debit
	Cash A/c	Real	Cash is going out	Credit
g.	Cash A/c	Real	Cash is coming in	Debit
	Sales A/c	Nominal	Sales are income	Credit
h.	Bank A/c	Personal	Bank is receiver	Debit
	Cash A/c	Real	Cash is going out	Credit
i.	Rent A/c	Nominal	Rent is expenditure	Debit
	Cash A/c	Real	Cash is going out	Credit
j.	Ganesh's drawings A/c	Personal	Ganesh is receiver (drawings)	Debit
	Cash A/c	Real	Cash is going out	Credit
k.	Cash A/c	Real	Cash is coming in	Debit
	Commission received a/c	Nominal	Commission is income	Credit

l.	Cash A/c	Real	Cash is coming in	Debit
	Santosh's A/c	Personal	Santosh is giver	Credit
m.	Interest A/c	Nominal	Interest paid is expenditure	Debit
	Cash A/c	Real	Cash is going out	Credit
n.	Salaries A/c	Nominal	Salaries is expense	Debit
	Outstanding salaries A/c	Personal	Payable to employees, givers of service	Credit
o.	Sudeer's A/c	Personal	Sudeer is receiver	Debit
	Cash A/c	Real	Cash is going out	Credit
p.	Ganesh's drawings A/c	Personal	Ganesh drawing the goods (receiver)	Debit
	Purchase A/c	Nominal	It decreases purchases / expenditure	Credit
q.	Bank A/c	Personal	Bank is receiver	Debit
	Rao's A/c	Personal	Rao is giver	Credit
r.	Manoj's A/c	Personal	Manoj is receiver	Debit
	Bank A/c	Personal	Bank is giver	Credit
s.	Bank A/c	Personal	Bank is receiver	Debit
	Interest A/c	Nominal	Bank interest is income	Credit
t.	Cash A/c	Real	Cash is coming in	Debit
	Bank A/c	Personal	Bank is giver	Credit

**JOURNAL ENTRIES IN THE BOOKS OF GANESH**

Date	Particulars	LF. No.	Debit Amount	Credit Amount
1 2008		3	4	5
Jan., 01	Cash A/c To Ganesh's capital A/c (being business commenced with cash)	Dr	20000	20000
" 02	Furniture A/c To cash A/c (being furniture purchased)	Dr	1000	1000
" 03	Cash A/c To Loan from Raju A/c (being loan taken from Raju)	Dr	2000	2000
" 04	Purchased A/c To Mohan's A/c (being goods purchased on credit)	Dr	800	800
" 05	Rajesh A/c To Sales A/c (being goods sold on credit)	Dr	2500	2500
" 06	Purchases A/c To Cash A/c (being goods purchased for cash)	Dr	900	900
" 06	Cash A/c To sales A/c (being goods sold for cash)	Dr	5000	5000
" 08	Bank A/c To Cash A/c (being cash deposited into bank)	Dr	1500	1500
" 09	Rent A/c To Cash A/c (being rent paid in cash)	Dr	400	400

10	Ganesh's drawing A/c To cash A/c (being cash withdrawn by owner)	Dr	500	500
11	Cash A/c To commission received A/c (being commission received)	Dr	200	200
12	Cash A/c To Satish's A/c (being cash received from satish)	Dr	2100	2100
13	Interest A/c To cash A/c (being interest paid)	Dr	300	300
14	Salaries A/c To outstanding salaries A/c (being salaries payable)	Dr	100	100
15	Sudeer's A/c To cash A/c (being paid to sudeer)	Dr	600	600
16	Ganesh's drawings A/c To purchases A/c (being goods withdrawn by owner)	Dr	700	700
19	Bank A/c To Rao's A/c (being cheque received from Rao)	Dr	1000	1000
25	Manoj's A/c To bank A/c (being cheque issued to Manoj)	Dr	1200	1200
28	Bank A/c To Interest received A/c (being interest received from bank)	Dr	200	200
31	Cash A/c To Bank A/c (being cash withdrawn from bank for office use)	Dr	300	300

## **LEDGER**

### **Ledger Meaning :**

- The Third stage in the accounting cycle is ledger posting it means posting transactions entered in the journal into their respective accounts in the ledger. It is the book of final entry.
- The Ledger is designed to accommodate the various accounts maintained by a trader.
- It contains the final and permanent record of all transactions in duly classified form.
- A ledger is a book which contains various accounts.
- The process of transferring the entries from the journal into the ledger is called posting.
- A Ledger may be defined as a summary statement of all the transactions relating to a person, asset, expense or income which have taken place during a given period of time and shows their net effect.
- The up to date state of any account can be easily known by referring to the ledger.

### **Features of a Ledger:**

- i. Ledger contains all the accounts-personal, real and nominal accounts.
- ii. It is a permanent record of business transactions.
- iii. It provides a means of easy reference.
- iv. It provides final balance of the accounts.
- Ledger is the principal book of accounts because it helps us in achieving the objectives of accounting. It gives answers to the following pertinent questions.
  - a. How much amount is due from others to the business?
  - b. How much amount is owed to others?
  - c. What are the total sales to an individual customer and what are the total purchases from an individual supplier?
  - d. What is the amount of profit or loss made during a particular period?
  - e. What is the financial position of the firm on a particular date?

### **Advantages/ Utilities/Importance of Ledger**

The following are the main utilities of Ledger

1. It provides complete information about all accounts in one book.
2. It is easy to ascertain how much money is due to suppliers (trade creditors from creditors' ledger) and how much money is due from customers (trade debtors from debtors' ledger).
3. It enables to ascertain, what are the main items of revenues/incomes (Nominal accounts).
4. It enables to ascertain, What are the main items of expenses(Nominal accounts)
5. It enables to know the kind of assets the enterprise holds and their respective values(Real Accounts)
6. It facilitates preparation of trial balance and thereafter preparation of financial statements i.e., profit and loss account and balance sheet.

## 5.4 Difference between Journal, Journal and Ledger

The following are some important differences between journal and ledger.

SL No.	Basis of difference	Journal	Ledger
1.	Nature of book	It is a book of original entry	It is a book of final entry
2.	Object	It is prepared to record all the transactions in chronological order (date wise)	It is prepared to know the net effect of various transactions affecting a particular account.
3.	Basis of preparation	It is prepared on the basis of source document (voucher) of transaction	It is prepared on the basis of journal.
4.	Stage of recording	Recording in the journal is the first stage	Recording in the ledger is the second stage.
5.	Balancing	Journal is not balanced	All ledger accounts are balanced
6.	Narration	Narration is written for each entry	No narration is given.
7.	Format	In journal there are five columns viz. date, particulars, ledger folio, debit and credit.	In ledger there are four columns on debit and credit side viz. date, particulars, journal folio and amount.
8.	Name of the process of recording entries	The process of recording in journal is called journalizing	The process of recording in the ledger is called posting.
9.	Basis of preparation of final accounts.	Journal directly does not serve as basis for preparation of final accounts.	Ledger serves the basis for the preparation of final accounts.

### Proforma of Ledger:

Dr				Cr			
Date	Particulars	J.F	Amount Rs.	Date	Particulars	J.F	Amount Rs.
	To Particulars of benefits received		Xxxxxx		By Particulars of benefits given		xxxxxx

### Example 12 ( Text Book Page No 13.22 )

Journalise the following transactions in the books of madhu and prepare necessary ledger accounts

- 2003 January
- 1 madhu commenced with Rs. 15,000/-
- 2 paid into the bank Rs. 10,000/-
- 3 purchased goods from 'B' for Rs. 2,000/-
- 4 Returned good to 'B' for Rs. 200 /-
- 5 Paid to 'B' in full settlement of A/c Rs. 1,700/-
- 7 Received interest from the bank Rs.750/-
- 9 Sold goods for cash Rs. 7000/-
- 12 Sold goods to Don for Rs. 4000/-
- 15 Received goods worth Rs. 100/- from don with a complaint about damage
- 16 Paid salaries Rs.400/-
- 17 Entertainment Rs.50/-
- 20 Received a cheque from Don Rs. 500/-
- 25 Issued a cheque for Rs. 100/- towards rent to landlord

### Solution :

Date	Particulars	L.F	Amount ( Rs.) Dr.	Amount ( Rs.) Cr.
2003 Jan 1	Cash A/c              Dr To Madhu's Capital A/c ( Being the business commenced)		15,000	15,000
Jan 2	Bank A/c              Dr To Cash A/c ( Being cash deposited into the bank )		10,000	10,000
Jan 3	Purchases A/c        Dr To ' B ' A/c ( Being goods purchased from ' B ' on credit )		2,000	2,000
Jan 4	' B ' A/c              Dr To Purchase returns A/c ( Being goods returned to B on account of Damage )		200	200
Jan 5	' B ' s A/c           Dr To Cash A/c To Discount A/c ( Being the payment to ' B ' in full settlement )		1,800 1,700 100	

Jan 7	Cash A/c              Dr To Interest from Bank A/c ( Being the cash received towards interest )		750	750
Jan 9	Cash A/c              Dr To Sales A/c ( Being Goods Sold for Cash )		7,000	7,000
Jan 12	Don's A/c              Dr To Sales A/c ( Being goods sold to Don on Credit )		4,000	4,000
Jan 15	Sales Returns A/c      Dr To Don's A/c ( Being goods returned by Don )		100	100
Jan 16	Salaries A/c              Dr To Cash A/c ( Being salaries paid )		400	400
Jan 17	Entertainment A/c      Dr To Cash A/c ( Being the entertainment expenses Paid )		50	50
Jan 20	Bank A/c              Dr To Don 's A/c ( Being cheque received from Don )		500	500
Jan 25	Rent A/c              Dr To Bank A/c ( Being rent paid by cheque )		1,000	1,000

Dr

**CASH A/c**

Cr

Date	Particulars	JF	Amount Rs.	Date	Particulars	JF	Amount Rs.
Jan 1	To Madhu Capital A/c		15,000	Jan 2	By Bank A/c		10,000
Jan 7	To Interest A/c		750	Jan 5	By B's A/c		1,700
Jan 9	To Sales A/c		7,000	Jan 6	By Salary A/c		400
			22,750	Jan 7	By Entertainment A/c		50
				Jan 31	By Balance c/d		10,600
							22,750
Feb 1	To Balance b/d		10,600				

Dr

**Madhu A/c**

Cr

Date	Particulars	JF	Amount Rs.	Date	Particulars	JF	Amount Rs.
Jan 31	To balance c/d		15,000	Jan 1	By Cash A/c		15,000
			15,000				15,000
				Feb 1	By Balance B/d		15,000

Dr				Bank A/c				Cr	
Date	Particulars	JF	Amount Rs.	Date	Particulars	JF	Amount Rs.		
Jan 2	To Cash A/c		10,000	Jan 25	By Rent A/c		100		
Jan 20	To Don A/c		500	Jan 31	By Balance c/d		10,400		
			10,500				10,500		
Feb 1	To Balance b/d		10,400						

Dr				Purchases A/c				Cr	
Date	Particulars	JF	Amount Rs.	Date	Particulars	JF	Amount Rs.		
Jan 3	To B A/c		2,000	Jan 31	By Balance c/d		2,000		
			2,000				2,000		
Feb 1	To Balance b/d		2,000						

Dr				B's A/c				Cr	
Date	Particulars	J F	Amount Rs.	Date	Particulars	JF	Amount Rs.		
Jan 4	To Purchase Returns A/c		200	Jan 25	By Purchases A/c		2,000		
Jan 5	To Cash A/c		1,700						
Jan 5	To Discount A/c		100						
			2,000				2,000		

Dr				Purchase Returns A/c				Cr	
Date	Particulars	JF	Amount Rs.	Date	Particulars	JF	Amount Rs.		
Jan 31	To balance c/d		200	Jan 4	By B A/c		200		
			200				200		
			200	Feb 1	By Balance B/d		200		

Dr

**Discount A/c**

Cr

Date	Particulars	JF	Amount Rs.	Date	Particulars	JF	Amount Rs.	
Jan 31	To balance c/d		100	Jan 5	By B A/c		100	
			100	Feb 1	By Balance B/d		100	

Dr

**Interest From Bank A/c**

Cr

Date	Particulars	JF	Amount Rs.	Date	Particulars	JF	Amount Rs.	
Jan 31	To balance c/d		750	Jan 7	By Cash A/c		750	
			750	Feb 1	By Balance B/d		750	

Dr

**Sales A/c**

Cr

Date	Particulars	JF	Amount Rs.	Date	Particulars	JF	Amount Rs.
Jan 31	To balance c/d		11,000	Jan 9	By Cash A/c		7,000
				Jan 12	By Don A/c		4,000
			11,000	Feb 1	By Balance B/d		11,000

Dr

**Don A/c**

Cr

Date	Particulars	JF	Amount Rs.	Date	Particulars	JF	Amount Rs.
Jan 12	To Sales A/c		4,000	Jan 15	By Sales Returns A/c		100
				Jan 20	By Bank A/c		500
			4,000	Jan 31	By Balance c/d		3,400
Feb 1	To Balance b/d		3,400				4,000

Dr

**Sales Returns A/c**

Cr

Date	Particulars	JF	Amount Rs.	Date	Particulars	JF	Amount Rs.
Jan 15	To Don A/c		100	Jan 31	By Balance c/d		100
			100				100
Feb 1	To Balance b/d		100				

Dr

**Salaries A/c**

Cr

Date	Particulars	JF	Amount Rs.	Date	Particulars	JF	Amount Rs.
Jan 16	To Cash A/c		400	Jan 31	By Balance c/d		400
			400				400
Feb 1	To Balance b/d		400				

Dr

**Entertainment A/c**

Cr

Date	Particulars	JF	Amount Rs.	Date	Particulars	JF	Amount Rs.
Jan 17	To Cash A/c		50	Jan 31	By Balance c/d		50
			50				50
Feb 1	To Balance b/d		50				

Dr

**Rent A/c**

Cr

Date	Particulars	JF	Amount Rs.	Date	Particulars	JF	Amount Rs.
Jan 25	To Bank A/c		100	Jan 31	By Balance c/d		100
			100				100
Feb 1	To Balance b/d		100				

## TRIAL BALANCE

### **Trial Balance Meaning :**

Trial Balance is a statement in which debit and credit balances of all ledger accounts are shown to test the Arithmetical accuracy of the books of account. Trial Balance is not conclusive proof of accuracy of books of accounts.

### **Definitions of Trial Balance:**

According to **J.R.Batliboi**, “ A Trial Balance is a statement of Debit and Credit balances extracted from the various accounts in the ledger with a view to test the arithmetical accuracy of the books.”

According to **Spicer and Peglar**, “ A Trial Balance is a list of all the balances standing on the ledger accounts and cash book of a concern at any given date.”

### **Features of a Trial Balance:**

1. It is not an account., it is only a statement which is prepared to verify the arithmetical accuracy of ledger accounts.
2. It contains debit and credit balances of ledger account.
3. It is prepared on a particular date generally at the end of business year.
4. Trial Balance helps in preparing final accounts.
5. As it is prepared by taking up the ledger account balances, both debit and credit side of a Trial Balance are always equal.
6. The preparation of Trial Balance is not compulsory. There is no hard fast rule in this regard.

### **Importance / Merits /Advantages of Trial Balance:**

- 1. Proof of Arithmetical accuracy:** It helps in checking the arithmetical accuracy of books of accounts.
- 2. Preparation of financial statements:** It helps in the preparation of final accounts i.e., Trading Account, Profit & Loss Account and Balance Sheet.
- 3. Detection of Errors:** It will help in detection of errors in the books of accounts and in their rectification.
- 4. Rectification of Errors:** It serves as instrument for carrying out the job of rectification of errors.
- 5. Easy Checking:** It is possible to find out the balances of various accounts at one place.

### **Limitations of Trial Balance:**

1. Trial balance can be prepared only in those concerns where double entry system of accounting is adopted. This system is very costly and time consuming. It cannot be adopted by the small business concerns.
2. Though Trial Balance gives arithmetical accuracy of the books of accounts but there are certain errors which are not disclosed by Trial Balance. That is why it is said that Trial balance is not a conclusive proof of the accuracy of the books of accounts.
3. If Trial Balance is not prepared correctly then the final accounts prepared will not reflect the true and fair view of the state of the affairs/financial position of the business. Whatever conclusions and decisions are made by the various groups of persons will not be correct and will mislead such persons.
4. Trial Balance tallies even though errors are existing in the books of accounts.
5. Even some transactions are omitted the Trial Balance tallies.

## **The main objectives of preparing the Trial Balance**

1. To have balances of all the accounts of the ledger in order to avoid the necessity of going through the pages of the ledger to find it out.
2. To have a proof that the double entry of each transaction has been recorded because of its agreement.
3. To have arithmetical accuracy of the books of accounts because of the agreement of the Trial Balance.
4. To have material for preparing the profit or loss account and balance sheet of the business.

## **Methods of preparing Trial Balance:**

There are two methods of preparing Trial Balance;

### **1. Totals Method:**

Under this method the total of debits and credits of all ledger accounts are shown in the debit and credit side of the Trial Balance. The Trial Balance prepared under this method is known as gross Trial Balance.

### **2. Balance Method:**

Under this method all the balances of each and every account will be shown against the debit or credit side of the Trial Balance. If an account has no balance then it will not be shown in the Trial Balance. This method is more convenient and commonly used.

### **3. Total and Balance Method:**

Under this method, the above two methods are combined. Under this method statement of trial balance contains seven columns instead of two columns.

## **Rules of Preparing Trial Balance:**

While preparing the trial balance from the given list of ledger balances, following rules should be taken into care:

1. The balances of all
  - (i) assets accounts (ii) expenses accounts (iii) Losses (iv) drawings (v) cash and bank balances are placed in the debit column of the trial balance.
2. The balances of all
  - (i) liabilities accounts (ii) incomes accounts (iii) profits (iv) capital are placed in the credit column of trial balance

## 10.6 Preparation of Trial Balance - Procedure

- As the Trial balance is prepared on a particular date that particular date should be shown on the head of trial balance.
- Trial balance is prepared in the form of statement containing Sl.no, Name of the account, Ledger Folio, Debit Balance and Credit Balance.
- The Debit Balances of the accounts are to be written in debit column, whereas Credit Balances of the accounts to be written in the credit column of Trial Balance. The totals of both columns should be equal, it proves arithmetical accuracy.

Aspects to be considered while preparing Trial Balance :

First prepare the format of Trial balance showing heading with date on which it is prepared. Whenever the balances of ledger accounts are given based on the nature of the account decide whether the account is debit or credit.

Generally the accounts which show debit balance are the accounts of various Assets, Expenses and losses, debtors, drawings etc. The Accounts which show credit balances are capital account, Loan A/c.s Profit & Gains A/c.s etc.

Check List of most frequent Debit & Credit Balances.

1	Capital	Credit	Loan
2	Opening stock	Debit	Asset
3	Purchases	Debit	Expense
4	Sales	Credit	Gain
5	Returns inwards	Debit	Loss
6	Returns outwards	Debit	Gain
7	Wages	Debit	Expense
8	Freight	Debit	Expense
9	Transport expenses	Debit	Expense
10	Royalties on production	Debit	Expense
11	Gas, fuel	Debit	Expense
12	Discount received	Credit	Revenue
13	Discount allowed	Debit	Loss
14	Bad debts	Debit	Loss
15	Bad debts reserve	Credit	Gain
16	Commission received	Credit	Revenue
17	Repairs	Debit	Expense
18	Rent	Debit	Expense
19	Salaries	Debit	Expense
20	Loan Taken	Credit	Loan
21	Interest received	Credit	Revenue
22	Interest paid	Debit	Expense
23	Insurance	Debit	Expense
24	Carriage outwards	Debit	Expense
25	Advertisements	Debit	Expense
26	Petty expenses	Debit	Expense

27	Trade expenses	Debit	Expense
28	Petty receipts	Credit	Revenue
29	Income tax	Debit	Drawings
30	Office expenses	Debit	Expense
31	Customs duty	Debit	Expense
32	Sales tax	Debit	Expense
33	Provision for discount on debtors	Debit	Liability
34	Provision for discount on creditors	Debit	Asset
35	Debtors	Debit	Asset
36	Creditors	Credit	Liability
37	Goodwill	Debit	Asset
38	Plant, machinery	Debit	Asset
39	Land, buildings	Debit	Asset
40	Furniture, fittings	Debit	Asset
41	Investments	Debit	Asset
42	Cash in hand	Debit	Asset
43	Cash at bank	Debit	Asset
44	Reserve fund	Credit	Liability
45	Loan advances	Debit	Asset
46	Horse, carts	Debit	Asset
47	Excise duty	Debit	Expense
48	General reserve	Credit	Liability
49	Provision for depreciation	Credit	Liability
50	Bills receivable	Debit	Asset
51	Bills payable	Credit	Liability
52	Depreciation	Debit	Loss
53	Bank overdraft	Credit	Liability
54	Outstanding salaries	Credit	Liability
55	Prepaid insurance	Debit	Asset
56	Bad debt reserve	Credit	Revenue
57	Patents & Trademarks	Debit	Asset
58	Motor vehicle	Debit	Asset
59	Outstanding rent	Credit	Revenue

#### PROFORMA FOR TRAIL BALANCE:

Trail balance for MR..... as on .....

	NAME OF ACCOUNT (PARTICULARS)	DEBIT AMOUNT (RS.)	CREDIT AMOUNT (RS.)

**Example 1** Make trial balance from the accounts prepared for example 12 in last chapter i.e ledger ( Pg No: 13.38)

*Solution*

**Trial Balance**

For the month ending January 31, 2003

	<i>Debit balances</i> <i>Rs.</i>	<i>Credit balances</i> <i>Rs.</i>
Cash account	10,600	
Madhu capital account		15,000
Interest from bank account		750
Discount account		100
Sales account		11,000
Don account	3,400	
Purchase returns account		200
Bank account	9,500	
Rent account	1,000	
Salaries account	400	
Entertainment account	50	
Purchases account	2,000	
Sales returns account	100	
	27,050	27,050

**Example 2** Make a trial balance as on 31.12.2002 from the following information.

<i>Particulars</i>	<i>Rs.</i>
Sundry debtors	32,000
Stock (1.1.2002)	22,000
Cash in hand	35
Cash at bank	1,545
Plant and machinery	17,500
Sundry creditors	10,650
Trade expenses	1,075
Sales	2,34,500
Salaries	2,225
Carriage outwards	400
Rent	900
Bills payable	7,500
Purchases	2,18,870

*Contd.*

(Contd.)

Discounts (Dr.)	1,100
Capital	79,500
Business premises	34,500

Solution

## Trial Balance as on December 31, 2002

	Dr. (Rs.)	Cr. (Rs.)
Sundry debtors	32,000	
Stock (1.1.2002)	22,000	
Cash in hand	35	
Cash at bank	1,545	
Plant and machinery	17,500	
Sundry creditors		10,650
Trade expenses	1,075	
Sales		2,34,500
Salaries	2,225	
Carriage outwards	400	
Rent	900	
Bills payable	7,500	7,500
Purchases	2,18,870	
Discounts (Dr.)	1,100	
Capital		79,500
Business premises	34,500	
Total	3,32,150	3,32,150

Example 3 Prepare a trial balance from the following accounting records.

Particulars	Rs.
Capital	1,00,000
Machinery	30,000
Stock (1.1.200X)	16,000
Wages	50,000
Carriage inwards	500
Salaries	5,000

Contd.

(Contd.)

Factory rent	2,400
Repairs	400
Fuel and power	2,500
Buildings	40,000
Sundry debtors	20,000
Sales	2,03,600
Purchases	1,22,000
Creditors	12,500
Returns outwards	2,000
Returns inwards	3,600
Drawings	2,000
Discounts allowed	750
Discounts received	250
Office expenses	1,000
Manufacturing expenses	600
Bills payable	8,500
Bills receivable	5,000
Cash in hand	2,400
Cash at bank	15,400
Office rent	1,800

*Solution*

Trial Balance as on .....

	Dr. (Rs.)	Cr. (Rs.)
Capital		1,00,000
Machinery	30,000	
Stock	16,000	
Wages	50,000	
Carriage inwards	500	
Salaries	5,000	
Factory rent	2,400	
Repairs	400	

*Contd.*

*Contd.*

Fuel and power	2,500	
Buildings	40,000	
Sundry debtors	20,000	
Sales		2,03,600
Purchases	1,22,000	
Creditors		12,500
Returns outwards		2,000
Returns inwards	3,600	
Drawings	2,000	
Discounts allowed	750	
Discounts received		250
Office expenses	1,000	
Manufacturing expenses	600	
Bills payable		8,500
Bills receivable	5,000	
Cash in hand	2,400	
Cash at bank	15,400	
Office rent	1,800	
Total	3,26,800	3,26,800

## **FINAL ACCOUNTS**

- In every business, the business man is interested in knowing whether the business has resulted in profit or loss and what the financial position of the business is at a given time.
- In brief, he wants to know (i) The profitability of the business and (ii) The soundness of the business.
- The trader can ascertain this by preparing the final accounts.
- The final accounts are prepared from the trial balance.
- Hence the trial balance is said to be the link between the ledger accounts and the final accounts.
- The final accounts of a firm can be divided into two stages.
- The first stage is preparing the trading and profit and loss account and the second stage is preparing the balance sheet.

## **TRADING ACCOUNT**

- This account is prepared to know the trading results or gross margin on trading of business, i.e., how much gross profit the business has earned from buying and selling during a particular period.
- The difference between the sales and cost of goods sold is gross profit.
- This is a nominal account in its nature hence all the trading expenses should be debited where as all the trading incomes should be credited to Trading Account.
- The balance of trading account will be considered as Gross Profit (credit balance) or Gross Loss (debit balance) and will be transferred to profit and loss A/c.
- While preparing the trading A/c the following equations also can be used.

**Sales less returns – Cost of goods sold = Gross Profit or Gross Loss**

**Sales = Total cash sales + credit sales.**

**Cost of goods sold = Opening stock + purchases less purchase returns + Direct expenses – Closing stock**

### **Advantages / Importance of Trading A/c:**

Trading Account has the following advantages.

#### **1.Information of Gross profit or Gross Loss:**

- Trading Account provides information regarding gross profit and sets the upper limit within which indirect expenses are to be incurred.
- Indirect expenses should be much less than the gross profit so that a good amount of profit may be earned.
- If trading account discloses gross loss , it is better to close the business rather than running at a gross loss because gross loss will further increase when indirect expenses are added to it.

#### **2.Gross Profit Ratio:**

This ratio is calculated as follows: **Gross profit Ratio = Gross Profit / Sales X 100**

- Higher the ratio, it is better condition. Gross profit ratio can be calculated with the help the Trading account year after year and comparison of performance of year after year can be made.
- A low ratio indicates unfavorable trend in the form of reduction in selling prices not accompanied by the proportionate decrease in cost of goods purchased or increase in cost of production.

### **3.Comparison of Closing Stock with Opening Stock :**

- Comparison of stock figures of one period with another period will be helpful in avoiding overstocking. Investment in stock should be reasonable so that production and sales go on smoothly.

#### **4. Fixation of selling price:**

- In case of a new product, the selling price can be easily fixed by adding in the cost of purchases or cost of goods manufactured the desired percentage of gross profit.

5. It enables the comparison of sales, purchases and direct expenses of one period with another period. The comparative study helps the management to control the affairs of the business and take sound decisions.

6. It helps to check the direct expenses.

7. It gives us the information about the proportion of gross profit or gross loss to the direct expenses. This study helps the management in arresting the unnecessary expenditure on any time.

## **PROFORMA OF TRADING ACCOUNT**

**Trading account of MR..... for the year ended .....**

Dr			Cr
Particulars	Amount	Particulars	Amount
To opening stock	Xxxx	By sales xxxx	
To purchases xxxx		Less: returns xxx	Xxxx
Less: returns xx	Xxxx	By closing stock	Xxxx
To carriage inwards	Xxxx		
To wages	Xxxx		
To freight	Xxxx		
To customs duty, octroi	Xxxx		
To gas, fuel, coal, power Water	Xxxx		
To factory expenses	Xxxx		
To other man. Expenses	Xxxx		
To direct expenses	Xxxx		
To gross profit c/d	xxxx		
			Xxxx
			Xxxx

## **PROFIT AND LOSS ACCOUNT**

- This account is prepared to calculate the net profit or net loss of the business concern.
- There are certain items of incomes and expenses of the business which must be taken into consideration for calculating net profit or net loss of the business concern.
- These are of indirect nature i.e., the whole business and relating to various activities which are done by the business for the purpose of making the goods available to the customers.
- Indirect expenses may be administrative expenses or management expenses, selling and distribution expenses, financial expenses and extra-ordinary losses and expenses to maintain the assets into working order.
- The business man is always interested in knowing his net income or net profit.
- Net profit represents the excess of gross profit plus the other revenue incomes over administrative, sales, Financial and other expenses.
- The debit side of profit and loss account shows the expenses and the credit side the incomes.
- If the total of the credit side is more, it will be the net profit.
- And if the debit side is more, it will be net loss.
- This account is prepared from nominal accounts and its balance is transferred to capital account as the whole the profit or loss will be that of the owner and it will increase or decrease the capital.

### **Importance of Profit and Loss Account:**

#### **1.Information of Net profit or Net loss:**

One of the important objectives of maintains the accounts are to see whether the business has earned profit or suffered loss during the accounting period. Profit and Loss A/c provides information regarding this important objective because it gives information about the profitability or otherwise of the business.

#### **2.Comparison of current profit with the last year profit:**

Profit and Loss A/c affords comparison of the current year's net profit with those of the past years. With this comparison it can be ascertained whether net profit of the business is showing a rising trend or down ward trend.

#### **3.Comparison of expenses:**

Comparison of various expenses included in the profit and loss account with expenses of the previous period helps in taking effective steps for control of unnecessary expenses.

#### **4.Helpful in preparation of Balance Sheet:**

Net profit or Net loss disclosed by the profit and loss A/c is transferred to capital Account and Capital Account appears on the liabilities side of the Balance Sheet. Without taking net profit or net loss, the balance sheet cannot be completed. Thus, the profit and loss account helps in the preparation of the balance sheet.

#### **5.Helpful in future Growth of business:**

On the basis of their profit figures of the current and previous period, estimates about the profits in the years to come can be made and projections about the expansion of the business can be made.

## PROFORMA OF PROFIT AND LOSS ACCOUNT

**PROFIT AND LOSS A/C OF MR.....FOR THE YEAR ENDED.....**

<b>Dr</b>			<b>Cr</b>
<b>PARTICULARS</b>	<b>AMOUNT</b>	<b>PARTICULARS</b>	<b>AMOUNT</b>
TO office salaries	Xxxxx	By gross profit b/d	Xxxx
TO rent,rates,taxes	Xxxxx	By Interest received	xxxxx
TO Printing and stationery	Xxxxx	By Discount received	Xxxx
TO Legal charges	Xxxx	By Commission	Xxxx
TO Audit fee	Xxxx	received	Xxxx
TO Insurance	Xxxx	By Income from investments	Xxxx
TO General expenses	Xxxx	By Dividend on shares	Xxxx
TO Advertisements	x xxx	By Miscellaneous investments	
TO Bad debts	Xxxx	By Rent received	
Add : Increase in bad debts	Xxxx	By reduction in provision for bad debts	
TO Carriage outwards	xXxx	By profit on sale of fixed asset	
TO Repairs	xxXx		
TO Depreciation	xxx		
TO interest paid	xxx		
TO Interest on capital	Xxxx		
TO Interest on loans	x xxx		
TO Discount allowed	Xxxx		
TO Commission			
<b>TO Net profit -----→</b> (transferred to capital a/c)	XXXXXX		XXXXXX

In Brief

**Net Profit = Gross profit + Other incomes - expenses**

### BALANCE SHEET

- A Balance Sheet a statement prepared with a view to measure the financial position of a business on a certain fixed date.
- The financial position of a concern is indicated by its assets on a given date and its liabilities on that date.
- Excess of assets over liabilities represent the capital and is indicative of the financial soundness of a company.
- A Balance sheet is also described as a “statement showing the sources and application of the capital”.
- It is a statement and not an account and prepared from real and personal accounts.
- Sources or liabilities are shown on the left hand side of the Balance Sheet.
- Application of funds (Assets) is shown on the right hand side of the Balance Sheet.
- Therefore, the two sides of the balance sheet should be equal. Otherwise, there is an error somewhere

### **Characteristics of Balance Sheet:**

1. It is prepared on a particular date and not for a particular period.
2. It is prepared after preparation of the Trading and Profit & Loss A/c.
3. As assets must be equal to the total liabilities. The two sides of the Balance must have the same total.
4. It shows the financial position of a business as a going concern.
5. It is a statement of assets and liabilities and not an account. Information that Balance Sheet convey to Outsiders

### **Importance/ Advantages:**

1. The nature and the value of assets.
2. It shows the nature and extent of liabilities.
3. It shows the owner's equity (i.e., assets-liabilities = capital)
4. It tells about the creditworthiness and solvency of the firm.
5. It reflects the liquidity of a firm.
6. It reveals other information required to changes in economic reserves and obligations.

### **PROFORMA OF BALANCE SHEET**

#### **BALANCE SHEET OF ..... AS ON .....**

Liabilities and capital	Amount	Assets	Amount
Creditors	xx	Cash in hand	X
Bills payable	xx	Cash at bank	x
Bank overdraft	xx	Bills receivable	x
Loans Mortgage	xx	Debtors	X
Reserve fund	xx	(-) Provision for bad and doubtful debts	
Outstanding Expenses	xx	Closing stock	X
Capital xxxxxx		Investments	x
Add:		Furniture and fittings	X
Net Profit xxxx		(-) Provision for depreciation	
-----		Plants & machinery	X
XXXXXXX		( - ) Provision for depreciation	
-----		Land & buildings	X
Less:		Patents,	X
Drawings xxxx	xxx	Trademarks	X
-----		,copyrights	X
		Goodwill	X
		Prepaid expenses	X
		Outstanding incomes	X
	XXXX		XXXX

**Adjustments** It is quite possible that the trial balance presented to you for preparation of final accounts is not a final one. In other words, there could be some pending items which call for certain adjustments to different accounts such as salaries yet to be paid, etc. In such cases, it is necessary to carry out the adjustments (given at the end of the trial balance) at the time of preparing final accounts.

Generally, all adjustments given at the end of trial balance have to be recorded twice: (a) once in trading or profit and loss account and (b) in balance sheet. (However, there may be certain adjustment items which may appear twice only in balance sheet<sup>1</sup> or twice in trading and profit and loss account<sup>2</sup>. But they are exceptional items.

The adjustments can be of different types. They are:

- (a) Accrual of expenses (outstanding or unpaid expenses)
- (b) Prepaid or unexpired expenses (paid in advance)
- (c) Provision for depreciation (charge depreciation)
- (d) Provision for bad debts
- (e) Increasing or decreasing provisions for bad debts
- (f) Provision for discount on debtors
- (g) Provision for discount on creditors
- (h) Appreciation in assets such as investments
- (i) Creating reserve out of profits
- (j) Commission payable to manager as a percentage of profits
- (k) Accrued income or income receivable
- (l) Income received in advance or unearned income
- (m) Interest on capital
- (n) Interest on drawings

Now let us discuss these in detail.

(a) *Accrual of expenses (Outstanding or unpaid expenses)* In case of outstanding expenses, it must be added to the concerned account in trading or profit and loss account. Again this item should be shown in the balance sheet as a liability.

1. For example, if it is given in adjustments that a credit purchase of furniture for Rs 10,000 from Y is not recorded in the books, this adjustment appears on the assets side of the balance sheet as addition to furniture and on the liabilities side of the balance sheet as creditor for furniture.
2. For example, if it is given in adjustments that goods destroyed by fire Rs 6,000 and nothing is recovered from insurance company, it appears on the credit side of trading account and again on the debit side of profit and loss account.

### Example 7

#### Trial Balance

	Dr.	Cr.
	(Rs.)	(Rs.)
Rent	500	

Adjustments: Outstanding rent Rs.300

#### Solution

#### Profit and Loss Account

	Rs.	Rs.	
To Rent	500		
Add: Outstanding	<u>300</u>	800	

#### Balance Sheet

Current liabilities:		
Outstanding rent	300	

The rent charged to Profit and Loss Account is Rs.500 + Rs.300 = Rs.800

Note: Again the outstanding rent of Rs.300 has to be shown as current liability in the balance sheet.

(b) **Prepaid or unexpired expenses (Paid in advance)** In case any of the expense is prepaid, it must be deducted from the concerned head in trading or profit and loss account. Again it will be shown in balance sheet as an asset.

### Example 8

#### Trial Balance

	Rs.	
Wages	6,000	

Adjustments: Wages prepaid Rs. 250

#### Solution

#### Trading Account

	Rs.	Rs.	
To Wages	6,000		
Less: prepaid	250	5,750	

#### Balance Sheet

	<i>Current assets:</i>	Rs.
	Wages prepaid	250

The wages charged to trading account is Rs. 6000 - Rs. 250 = Rs. 5,750

Note: Again the prepaid wages of Rs.250 has to be shown as current asset in the balance sheet.

(c) **Provision for depreciation (Charge depreciation)** Depreciation refers to the reduction in value of the asset. It results because of

- Wear and tear of the asset
- Passage of time
- Technological developments and obsolescence

Generally, all fixed assets are subject to depreciation.

The formula to calculate depreciation under a popular method, called straight-line method, is given as follows:

$$\text{Depreciation} = \frac{\text{Cost of the asset} - \text{Scrap}}{\text{Number of life years}}$$

**Example 9** A building is bought for Rs.2,50,000. It is expected to be actively useful for say 10 years after which it can be sold for Rs.50,000. Calculate depreciation per year.

$$\text{Depreciation} = \frac{250,000 - 50,000}{10} = \text{Rs. } 20,000$$

The depreciation on building per year is Rs. 20,000.

Generally depreciation is charged as a percentage on the value of fixed asset per annum. If depreciation is given as an adjustment, it is to be charged to profit and loss account and again it should be deducted from the concerned asset in the Balance Sheet.

In the above example, charge Rs. 20,000 to profit and loss account debit side. This adjustment is shown in profit and loss account as follows:

#### Profit and Loss Account

Rs.	
To Depreciation on Buildings	20,000

Show Rs.2,30,000 ( $= 250,000 - 20,000$ ) as the value of buildings in the balance sheet under fixed assets. This will appear in balance sheet as shown below:

#### Balance Sheet

	Fixed Assets:-	Rs.	Rs.
	Buildings	2,50,000	
	Less: depreciation	20,000	
			2,30,000

(d) **Writing off bad debts and provision for bad and doubtful debts** A bad debt is debt which is irrecoverable and hence it will be written off as a loss. At the time of preparation of balance sheet, some debts might have become bad and they will be written off as bad debts and there is certainty regarding that loss. But, some

other debts are likely to become bad and it is not known how much of the debt is certainly going to become bad. As a matter of conservatism policy, the businessmen, estimate the debts which are likely to become bad and make a provision for bad debts.

At times, there may be need for additional bad debts to be provided. Here add the additional provision to the given bad debts in the trial balance. Also, deduct the new bad debts only from sundry debtors of balance sheet current assets heading. The following are the examples with regard to bad debts and provision for bad debts (or reserve for bad debts). These examples focus on the treatment of these items in final accounts.

#### **Example 10**

**Trial Balance**

	Rs.	Rs.
Sundry debtors	50,000	

**Adjustments:** (a) Write off bad debts Rs. 5,000. (b) Create 5 % reserve for bad and doubtful debts.

**Solution**

**Adjustment a:** (1) Bad debts of Rs.5,000 should be shown on the debit side of profit and loss account. (2) Provide 5 % on debtors towards reserve for bad and doubtful debts (RBD) after deducting Rs.5,000 from the debtors.

Now, the debtors after deducting bad debts is Rs. 45,000 ( $= 50,000 - 5000$ )

**Adjustment b:** Provide 5% for RBD on Rs. 45,000; so the provision for bad and doubtful debts is Rs. 2,750.

This will appear in profit and loss account as given below:

**Profit and Loss Account**

To bad debts	5,000	
<i>Add: To 5% provision for bad and doubtful debts</i>	<u>2,750</u>	
	<b>7,750</b>	

These adjustments will appear in balance sheet as shown below:

**Balance Sheet**

	<b>Current Assets:</b>	Rs.	Rs.
Sundry debtors	50,000		
<i>Less: bad debts</i>	<u>5,000</u>		
	45,000		
<i>Less: 5% provision for bad and doubtful debts</i>	<u>2,750</u>		
		42,250	

The net debtors is shown in balance sheet after deducting (a) bad debts in the adjustments and (b) reserve for bad and doubtful debts in the adjustments.

### Example 11

**Trial Balance**

	Rs.	Rs.
Sundry debtors	40,000	
Bad debts	500	
Provision for bad and doubtful debts		1000

Adjustments: (a) Write off further bad debts Rs.1000.

(b) Increase provision for bad and doubtful debts to Rs.1,200

### Solution

**Profit and Loss Account**

To bad debts	500	
Add: further bad debts (adjustments)	1000	
To new provision (from adjustments)	<u>1200</u>	
	2,700	
Less: old provision (from trial balance)	1,000	
	1,700	

These adjustments will appear in balance sheet as shown below:

**Balance Sheet**

Current Assets:	Rs.	Rs.
Sundry debtors	40,000	
Less: further bad debts (adj)	<u>1,000</u>	
	39,000	
Less: new provision for bad and doubtful debts (PBDD -adj)	1,200	
		37,800

The procedure of dealing with provision for bad and doubtful debts can be simplified shown as follows:

**(e) Provision for bad and doubtful debts**

**Profit and Loss Account**

Bad debts from trial balance	XX	
<i>Add: further bad debts</i>	XX	
(from adjustment)		
New provision for bad and doubtful debts (adjustments)	XX	
	XX	
<i>Less: old provision for bad and doubtful debts (trial balance)</i>	XX	

**Balance Sheet**

Sundry debtors	XX	
<i>Less: further bad debts (adjustment)</i>	XX	
	XX	
<i>Less: new provision for bad and doubtful debts (adj)</i>	XX	XX

**(f) Provision for discount on debtors** The treatment for provision for discount on debtors is similar to that of provision for bad and doubtful debts. The provision for discount on debtors should be calculated only on good debts as discount is allowed on prompt payment. Hence, after deducting further bad debts given in the adjustments and provision for bad debts (new) from the debtors, calculate provision for discount on debtors at the given percentage. Provision for discount on debtors will appear on the debit side of profit and loss account and again in balance sheet as a deduction from sundry debtors.

**(g) Provision for discount on creditors** Provision for discount on creditors will be calculated on sundry creditors at the given percentage. It appears on the credit side of profit and loss account and again in the balance sheet as a deduction from sundry creditors.

**(h) Appreciation in assets such as investments** In exceptional cases, certain assets such as investments may appreciate in value. As a matter of conservatism principle, appreciation is not advisable to be shown in the final accounts. However, when appreciation of investments is given as adjustment, it appears on the credit side of profit and loss account and again in balance sheet as an addition to investments.

**(i) Accrued income or income receivable** This appears on the credit side of profit and loss account and again in balance sheet on the assets side.

**(j) Income received in advance or unearned income** This appears as a deduction from the concerned income in profit and loss account and again in balance sheet as a liability.

**(k) Interest on capital** It appears in the debit side of profit and loss account and again in balance sheet as addition to capital.

**(l) Interest on drawings** It appears on the credit side of profit and loss account and it will be deducted from capital account along with the drawings.

**Illustration 1** From the following trial balance of Vikram Foundry Works, prepare trading account and profit and loss account for the year ending March 31, 2003. Also prepare a balance sheet as on that date.

**Trial Balance as on March 31, 2003**

<i>Debit balances (Dr.)</i>	<i>Rs.</i>	<i>Credit balances (Cr.)</i>	<i>Rs.</i>
Electricity	14,000	Interest	16,000
Land	1,40,000	Discount	6,000
Interest	16,000	Sales	8,00,000
Wages	50,000	Returns	10,000
Opening stock	20,000	Sundry creditors	60,000
Rent	24,000	Capital	3,02,000
Purchases	3,00,000	Bills payable	15,000
Office expenses	30,000		
Building	4,00,000		
Salaries	90,000		
Power gas and water	30,000		
Returns	20,000		
Furniture	15,000		
Sundry debtors	60,000		
	12,09,000		12,09,000

**Adjustments:**

- Outstanding salaries Rs.10,000
- Closing stock Rs.80,000
- Depreciate buildings @ 10 per cent per annum.
- Interest received in advance Rs.2,000
- Write off bad debts Rs.10,000

**Solution**

(In the books of Vikram Foundry Works)  
**Trading Account for the year ending March 31, 2003**

<i>Dr.</i>	<i>Rs.</i>		<i>Rs.</i>	<i>Cr.</i>
To opening stock	20,000	By sales	8,00,000	
		Less: returns	<u>20,000</u>	
To purchases	3,00,000	By closing stock	7,80,000	80,000

*Contd.*

*Contd.*

Less: returns	10,000	2,90,000	
To power, gas and water		30,000	
To wages		50,000	
To gross profit transferred to profit and loss account	4,70,000		
	8,60,000		

### Profit and Loss Account for the year ending 31.3.2003

Dr.	Rs.	Rs.	Cr.	Rs.	Rs.
To salaries	90,000		By gross profit		4,70,000
Add: outstanding	<u>10,000</u>	1,00,000			6,000
To electricity		14,000	By discount received		
To interest		16,000	By interest received	16,000	
			Less: received in advance	<u>2,000</u>	14,000
To rent	24,000				
To bad debts (adj.)	10,000				
To office expenses		30,000			
To provision for depreciation: buildings	40,000				
To net profit transferred to capital account	<u>2,56,000</u>				
		4,90,000			4,90,000

### Balance Sheet As on 31.3.2003

Liabilities	Rs.	Rs.	Assets	Rs.	Rs.
<b>Long-term liabilities</b>			<b>Fixed assets</b>		
Vikram's capital account	3,02,000		Land		1,40,000
Add: net profit from P and L account	<u>2,56,000</u>	5,58,000	Buildings	4,00,000	
			Less: depreciation	<u>40,000</u>	360,000
			Furniture		1,50,000
<b>Current liabilities</b>			<b>Current assets</b>		
Sundry creditors	60,000		Stock		80,000
Bills payable	15,000		Sundry debtors	60,000	
Outstanding salaries	10,000		Less: new bad debts	<u>10,000</u>	50,000
Interest received in advance	2,000				
Total	<u>6,45,000</u>		Total		6,45,000

**Illustration 2** From the following trial balance and adjustments of Swaraj Emporium, prepare trading and profit and loss account for the year ended December 31, 2001 and a balance sheet as on that date.

	Rs.	Rs.
Sundry debtors	64,000	
Stock (1.1.2001)	44,000	
Cash in hand	70	
Plant and machinery	35,000	
Sundry creditors		21,300
Trade expenses	2,150	
Sales		2,69,000
Salaries	4,450	
Carriage outwards	800	
Rent	1,800	
Bills payable		15,000
Purchases	2,37,740	
Discounts	2,200	
Business premises	69,000	
Capital (1.1.2001)		1,59,000
Cash at bank	3,090	
	4,64,300	4,64,300

**Adjustments:**

1. The stock as on December 31, 2001 was Rs. 24,900
2. Rent was unpaid to the extent of Rs. 170
3. Outstanding trade expenses were Rs. 300
4. Write off for bad debts Rs. 800
5. Provide 5% for doubtful debts
6. Depreciate plant and machinery @ 10% per annum
7. Business premises are to be depreciated by 2% per annum

**Solution**

(in the books of Swaraj Emporium)

**Trading Account for the year ending 31.12.2001**

Dr.	Rs.	Cr.
To opening stock	44,000	By sales
To purchases	2,37,740	2,69,000
To gross profit transferred to Profit and Loss Account	12,160	24,900
	2,93,900	2,93,900

**Profit and Loss Account for the year ending 31.12.2001**

*Dr.*

*Cr.*

	Rs.			Rs.
To salaries		4,450	By gross profit	12,160
To trade expenses:	2,150		By net loss transferred to capital account	8,550
<i>Add:</i> Outstanding	300	2,450		
To carriage outwards		800		
To rent	1,800	1,970		
<i>Add:</i> outstanding	170			
To discounts		2,200		
To bad debts (TB <sup>3</sup> )	Nil			
<i>Add:</i> further bad debts (adj)	800			
<i>Add:</i> provision (new) @ 5%	<u>3,160</u>			
<i>Less:</i> old provision (TB)	<u>Nil</u>	3,960		
To depreciation				
Plant @10%	3,500			
Business Premises	<u>1,380</u>	4,880		
		20,710		20,710

**Balance Sheet**  
**As on 31.12.2001**

<b>Liabilities</b>	<b>Rs.</b>	<b>Rs.</b>	<b>Assets</b>	<b>Rs.</b>	<b>Rs.</b>
<b>Long-term liabilities</b>			<b>Fixed assets</b>		
Swaraj Emporium's capital account	1,59,000		Plant and machinery	35,000	
<i>Less:</i> Net loss from P and L Account	<u>8,550</u>	1,50,450	<i>Less:</i> depreciation	<u>3,500</u>	31,500
<b>Current Liabilities</b>		21,300	Business premises	69,000	
Sundry creditors			<i>Less:</i> depreciation	<u>1,380</u>	67,620
Bills payable		15,000	<b>Current Assets</b>		
			Stock		24,900
			Sundry debtors	64,000	

*Contd.*

3. Trial Balance

Contd.

		<i>Less: further bad debts (adj)</i>	800
		63,200	
		<i>Less: new provision (adj)</i>	3,160
		3090	60,040
Outstanding expenses:		Cash at bank	70
Rent:	170	Cash in hand	
Trading expenses	300	470	
Total	<b>1,87,220</b>	Total	<b>1,87,220</b>

**Illustration 3** Prepare a trading and profit and loss account for the year ending 30.6.2002 from the following trial balance from the books of Madhav Furniture Mart:

**Trial Balance**

<i>Debit balances (Dr.)</i>	<i>Rs.</i>	<i>Credit balances(Cr.)</i>	<i>Rs.</i>
Opening stock	5,000	Capital	20,000
Purchases	29,200	Sales	62,500
Sundry debtors	25,000	Sundry creditors	13,400
Bills receivable	2,800	Bills payable	5,000
Plant	10,000	Loan and mortgage	18,000
Interest on loan	300	Bank overdraft	2,400
Wages	15,000		
Buildings	24,000		
Loose tools	600		
Cash on hand	600		
Stationery	500		
Salaries	8,200		
Discount	100		
	1,21,300		1,21,300

Adjustments:

Closing stock Rs.5,600

Write off loose tools Rs.540

Interest on mortgage @ 15% per annum.

Provide interest on capital @ 5% per annum.

Provide 5% reserve for doubtful debts.

in the books of Madhav Furniture Mart)

**Trading Account for the year ending 30.6.2002**

Dr:

Cr:

	Rs.		Rs.
To opening stock	5,000	By sales	62,500
To purchases	29,200	By closing stock	5,600
To wages	15,000		
To gross profit transferred to profit and loss account	<b>18,900</b>		
	68,100		68,100

**Profit and loss account for the year ending 30.6.2002**

Dr:

Cr:

	Rs.		Rs.
To salaries	8,200	By gross profit	18,900
To stationery	500		
To interest on loan	300		
To discount	100		
To interest on capital @ 5%	1,000		
To loose tools written off	540		
To reserve for doubtful debts	1,250		
To interest on mortgage @ 15%	2,700		
To net profit transferred to Capital Account	<b>4,310</b>		
	18,900		18,900

**Balance Sheet**

**As on 31.12.2002**

<i>Liabilities</i>	<i>Rs.</i>	<i>Rs.</i>	<i>Assets</i>	<i>Rs.</i>	<i>Rs.</i>
<b>Long-term liabilities</b>			<b>Fixed assets</b>		
Madhav's capital account	20,000		Buildings		24,000
Add: interest on capital	1,000		Plant		10,000
Add: net profit transferred from P and L Account	<u>4,310</u>	25,310	Loose tools	600	
			<i>Less: written off</i>	<u>540</u>	60

*Contd.*

*Contd.*

Current Liabilities		Current Assets		
Sundry creditors	13,400	Stock		5,600
Bills payable	5,000	Sundry debtors	25,000	
		<i>Less: reserve for bad and doubtful debts @5%</i>	<u>1250</u>	23,750
Loan and mortgage	18,000	Bills receivable		2,800
<i>Add: interest</i>	<u>2,700</u>			
Bank over draft	2,400	Cash in hand		600
	<b>66,810</b>			<b>66,810</b>

**Code: 13A52501**

**R13**

**UNIT – V**

- 10 From the following trial balance of Rama as at 31<sup>st</sup> Mar. 2007, prepare trading and profit and loss account for the year ended 31<sup>st</sup> Mar. 2007 and balance sheet on as that date.

**Trial balance of Rama  
(as 31<sup>st</sup> Mar. 2007)**

Particulars	Debit amount	Credit amount
Stock	45,000	
Plant and machinery	75,000	
Purchases	2,25,000	
Trade charges	10,000	
Carriage inwards	2,500	
Capital		75,000
Carriage outwards	1,500	
Factory rent	1,500	
Discount	350	
Sales		4,20,750
Bills payable		2,000
Insurance	700	
Sundry debtors	60,000	
Office rent	3,000	
Printing and stationery	600	
Traveller's salaries	2,800	
Advertising	15,000	
Sundry creditors		15,000
Bills receivables	6,000	
Bad debts provision		200
Drawings	6,000	
Salaries	15,000	
Wages	20,000	
Furniture	7,500	
Coal and gas	1,000	
Cash in hand	2,000	
Cash at bank	12,500	
	<b>5,12,950</b>	<b>5,12,950</b>

Adjustments: (i) Closing stock Rs.35,000. (ii) Outstanding salaries Rs.1,000.

**OR**

- 11 Journalize the following transactions in the books of M/s. Ravi & Co for Dec-2015

Date	Particular
1/12/2015	Business commenced with cash 5,00,000
2/12/2015	Cash deposited into bank 4,00,000
5/12/2015	Purchased goods from Raju on credit 10,00,000
10/12/2015	Salaries paid through bank 50,000
15/12/2015	Sold goods to Ramakrishna on credit 16,00,000
20/12/2015	Rent paid in cash 15,000
25/12/2015	Cash drawn from bank for office 2,00,000
30/12/2015	Paid transport 10,000
31/12/2015	Received interest from bank 10,000

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## RATIO ANALYSIS

### Introduction

Alexander Wall is considered to be the pioneer of Ratio Analysis. He presented the detailed system of Ratio Analysis in 1909 and explained its usefulness in financial analysis.

Ratio Analysis is most widely used powerful tool of financial analysis. It is an important technique of analysis and interpretation of financial statements. It is also used to analyze various aspects of operational efficiency and degree of profitability.

Ratio Analysis is based on different ratios which are calculated from the accounting information contained in the financial statements. Different ratios are used for different purposes.

### Meaning of Ratio

- Ratio is a figure expressed in terms of another.
- It is an expression of relationship between one figure, two figures and the other figures which are mutually inter-dependent.
- In other words a ratio is a mathematical relationship between two items expressed in a quantitative form. When ratio is explained with reference to the items shown in the financial statements.
- It is called as an Accounting Ratio.
- The ratio analysis facilitates easy understanding of financial statements.

### Uses or Advantages or Importance of Ratio Analysis

Ratio Analysis stands for the process of determining and presenting the relationship of items and groups of items in the financial statements. It is an important technique of financial analysis. It is a way by which financial stability and health of a concern can be judged. The following are the main uses of Ratio analysis:

**(i) Useful in financial position analysis:** Accounting reveals the financial position of the concern. This helps banks, insurance companies and other financial institution in lending and making investment decisions.

**(ii) Useful in simplifying accounting figures:** Accounting ratios simplify, summaries and systematic the accounting figures in order to make them more understandable and in lucid form.

**(iii) Useful in assessing the operational efficiency:** Accounting ratios helps to have an idea of the working of a concern. The efficiency of the firm becomes evident when analysis is based on accounting ratio. This helps the management to assess financial requirements and the capabilities of various business units.

**(IV) Useful in forecasting purposes:** If accounting ratios are calculated for number of years, then a trend is established. This trend helps in setting up future plans and forecasting.

**(V) Useful in locating the weak spots of the business:** Accounting ratios are of great assistance in locating the weak spots in the business even through the overall performance may be efficient.

**(VI) Useful in comparison of performance:** Managers are usually interested to know which department performance is good and for that he compare one department with the another department of the same firm. Ratios also help him to make any change in the organisation structure.

## **LIMITATIONS OF RATIO ANALYSIS:**

These limitations should be kept in mind while making use of ratio analyses for interpreting the financial statements. The following are the main limitations of ratio analysis.

**False results if based on incorrect accounting data:** Accounting ratios can be correct only if the data (on which they are based) is correct. Sometimes, the information given in the financial statements is affected by window dressing, i. e. showing position better than what actually is.

**No idea of probable happenings in future:** Ratios are an attempt to make an analysis of the past financial statements; so they are historical documents. Now-a-days keeping in view the complexities of the business, it is important to have an idea of the probable happenings in future.

**Variation in accounting methods:** The two firms' results are comparable with the help of accounting ratios only if they follow the same accounting methods or bases. Comparison will become difficult if the two concerns follow the different methods of providing depreciation or valuing stock.

**Price level change:** Change in price levels make comparison for various years difficult.

**Only one method of analysis:** Ratio analysis is only a beginning and gives just a fraction of information needed for decision-making so, to have a comprehensive analysis of financial statements, ratios should be used along with other methods of analysis.

**No common standards:** It is very difficult to lay down a common standard for comparison because circumstances differ from concern to concern and the nature of each industry is different.

**Different meanings assigned to the same term:** Different firms, in order to calculate ratio may assign different meanings. This may affect the calculation of ratio in different firms and such ratio when used for comparison may lead to wrong conclusions.

**Ignores qualitative factors:** Accounting ratios are tools of quantitative analysis only. But sometimes qualitative factors may surmount the quantitative aspects. The calculations derived from the ratio analysis under such circumstances may get distorted.

**No use if ratios are worked out for insignificant and unrelated figure:** Accounting ratios should be calculated on the basis of cause and effect relationship. One should be clear as to what cause is and what effect is before calculating a ratio between two figures.

## Liquidity Ratios

Liquidity ratios express the ability of the firm to meet its short-term commitments as and when they become due. Creditors are interested to know whether the firm will be in a position to meet its commitments on time or not. If the firm is not in a position to meet its short-term commitments such as payment of taxes, wages and salaries, and so on, then it cannot continue in business for long despite its strong capital base. Liquidity ratios help in identifying the danger signals for the firm in advance. Apart from the firm itself, all the financing companies offering short-term finances are interested in these ratios.

Liquidity ratios can be classified into two types:

**(a) Current Ratio** Current ratio is the ratio between current assets and current liabilities. The firm is said to be comfortable in its liquidity position if the current ratio is 2:1. It is almost considered as a yardstick to assess short-term liquidity. However, it may vary from one industry sector to the other. In other words, for every rupee of current liability, there should be two rupees worth current assets. The interests of the creditors are safeguarded if the current ratio is at least 2:1.

$$\text{Current Ratio} = \text{Current Assets}/\text{Current Liabilities}$$

The current assets include stock, debtors, bills receivable, cash at bank, cash in hand, prepaid expenses, income yet to be received, and so on. All these are short term assets. The current liabilities are creditors, bank overdraft payable in a period less than one year duration, bills payable, outstanding expenses, incomes received in advance, all provisions, dividends payable, and so on. All these are current liabilities.

The current ratio is also called working capital ratio. It is because it is related to the working capital of the firm. Higher the current ratio, the better is the coverage of current assets for the short-term claims. This parameter is very useful in inter-firm comparison.

Extremely high current ratio may imply improper handling of stocks. If larger stocks are lying unsold, this will push up the current ratio. Unrealised debtors, too much cash balances or few creditors also could push up the current ratio. So, extremely high current ratios should not be taken for granted for increased efficiency. This also means profitability is eroded to that extent in the sense that stocks are lying unsold or debts are not realised. This affects working capital and also the volume of profits.

The yardstick to assess the short-term liquidity varies from industry to industry, firm to firm within the same industry and season to season within the same company. Indiscriminate use of this yardstick may result in wrong conclusions. It is to be noted that the current assets are not the only source of funds to meet the short-term commitments. A firm can borrow from new creditors to meet the old commitments.

**(b) Quick Ratio** Quick ratio is also called acid test ratio. It measures the firm's ability to convert its current assets quickly into cash in order to meet its current liabilities. It is the ratio between liquid assets and liquid liabilities. It supplements the information given by current ratio.

$$\text{Quick Ratio} = \text{Quick Assets}/\text{Current Liabilities}$$

where Quick assets = Current assets - (Stock + Prepaid expenses)

Quick assets are those assets that can be converted into cash quickly. These are also called liquid assets. Since stock can not be sold quickly, it is not included in the list of quick assets. All current assets except stock and prepaid expenses, if any, are called quick or liquid assets. The standard for this ratio is 1:1. In other words, for every rupee of quick liability, there should be one rupee worth quick asset. Quick ratio provides a hard and rigorous measure of short term liquidity.

The quick ratio when read along with current ratio provides better picture of the firm's ability to meet its short-term commitments with the short-term assets.

**Note:** Stocks and prepaid expenses are not to be taken as quick assets.

### Example 1

From the following Balance Sheet of XYZ Co. Ltd., calculate liquidity ratios.

Balance Sheet of XYZ Co. Ltd.

as on 31.12.200X

(Rs in thousand)

Liabilities	Rs	Assets	Rs
Preference share capital	100	Land and Buildings	225
Equity share capital	150	Plant and Machinery	250
General reserve	250	Furniture and Fixtures	100
Debentures	400	Stock	250
Creditors	200	Debtors	125
Bills payable	50	Cash at Bank	250
Outstanding expenses	50	Cash in hand	125
Profit and loss account	100	Prepaid expenses	50
Bank Loan (Long-term)	200	Marketable securities	125
	1500		1500

**Solution**

**Calculation of Current Ratio** From the above balance sheet, identify the current assets and current liabilities.

The current assets include stock (250), debtors (125), cash at bank (250), cash in hand (125), prepaid expenses (50), and marketable securities (125). The total of these is 925.

The current liabilities include creditors (200), bank overdraft (50), and outstanding expenses (50). The total of these is 300.

$$\begin{aligned}
 \text{Current ratio} &= \text{Current assets/Current liabilities} \\
 &= 925/300 \\
 &= 3.08:1
 \end{aligned}$$

For every one rupee of current liabilities, there is Rs 3.08 worth current assets. The liquidity position is satisfactory as it is more than the standard of 2:1.

**Calculation of Quick Ratio** Now identify the quick assets. Exclude stock and prepaid expenses from the list of current assets. In this case, the quick assets are  $925 - (250 + 50) = 625$ .

$$\begin{aligned}\text{Quick ratio} &= \text{Quick assets}/\text{Current liabilities} \\ &= 625/300 \\ &= 2.08\end{aligned}$$

Since this also is above the standard of 1:1, short-term liquidity position of the company is satisfactory.

## 2) Activity Ratios

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

- (a) Inventory turnover Ratio
- (b) Debtors Turnover Ratio
- (c) Creditors Turnover Ratio

### Inventory Turnover Ratio

It is also called stock turnover ratio. It indicates the number of times the average stock is being sold during a given accounting period. It establishes the relation between the cost of goods sold during a given period and the average amount of inventory outstanding during that period. The higher the inventory turnover ratio, the better is the performance of the firm in selling its stocks.

It helps in determining the liquidity of the firm by giving the rate at which inventories are converted into sales and then to cash. It also helps the financial manager to design an appropriate inventory policy so as to avoid piling of inventories. It is calculated as given below:

$$\text{Inventory turnover ratio} = \text{Cost of goods sold}/\text{Average inventory}$$

Where cost of goods sold = Sales - Gross profit;

Average inventory is the average of opening stock at the beginning of the year and the closing stock at the end of the year, that is,

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

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

From inventory turnover ratio, we can also determine the inventory holding period. It is determined as given below:

$$\text{Inventory holding period} = 365 \text{ days}/\text{Inventory turnover ratio}$$

#### Example 2

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

(a) Calculation of Inventory Turnover Ratio To calculate Inventory turnover ratio, we need cost of goods sold and average stock

$$\begin{aligned}\text{Cost of goods sold} &= \text{Sales} - \text{Gross Profit} \\ \text{Gross profit} &= 20\% \text{ of sales value, i.e., Rs } 1,00,000\end{aligned}$$

$$\begin{aligned}\text{Cost of goods sold} &= \text{Rs } 5,00,000 - \text{Rs } 1,00,000 \\ &= \text{Rs } 4,00,000.\end{aligned}$$

$$\begin{aligned}\text{Average inventory} &= (16,000 + 14,000)/2 \\ &= \text{Rs } 15,000\end{aligned}$$

$$\begin{aligned}\text{Inventory turnover ratio} &= \text{Cost of goods sold}/\text{average inventory} \\ &= 4,00,000/15,000 \\ &= 26.66 \text{ times}\end{aligned}$$

This means that during the year, the average stock is being sold 26.66 times.

(b) Inventory holding period

$$\begin{aligned}&= 365 \text{ days}/\text{Inventory turnover ratio} \\ &= 365 \text{ days}/26.66 \\ &= 13.69 \text{ days or 14 days approximately.}\end{aligned}$$

**Debtors' Turnover Ratio** Debtors turnover ratio reveals the number of times the average debtors are collected during a given accounting period. In other words, it shows how quickly the firm is in a position to collect its debts. It is necessary to keep close monitoring of realisation of debts because it directly affect the working capital position. In case, the firm is not in a position to collect its debts, to meet the working capital requirements, it has to borrow paying interest. This further erodes the profitability. The successful companies maintain the aged list of the debtors showing the details of when to collect, how much to collect and from which debtor.

Debtors' Turnover Ratio is calculated as given below:

$$\text{Debtors turnover ratio} = \text{Credit sales}/\text{Average debtors}$$

Where credit sales refer to goods sold on credit. Average debtors is the average of opening and closing balances of debtors for the given accounting period.

A higher debtors' turnover ratio explains that the firm is efficient in collecting its debts whereas lower ratio signifies its inefficiency.

**Debt Collection Period** Debt collection period refers to the time taken to collect the debts. From debtors' turnover ratio, we can find out the debt collection period as follows.

$$\text{Debt collection period} = 365 \text{ days}/\text{Debtors turnover ratio}$$

The lesser the time, more is the efficiency of the firm and vice versa.

### Example 3

A firm's sales during the year was Rs 400,000 of which 60 percent were on credit basis. The balance of debtors at the beginning and end of the year were 25,000 and 15,000 respectively. Calculate debtors' turnover ratio of the firm. Also find out debt collection period.

*Solution*

$$\begin{aligned}\text{Credit sales} &= 60\% \text{ of } 400,000 \\ &= 2,40,000\end{aligned}$$

$$\begin{aligned}\text{Average debtors} &= (\text{Opening balance of debtors} + \text{Closing balance of Debtors})/2 \\ &= (25,000 + 15,000)/2 \\ &= 20,000\end{aligned}$$

Calculation of debtors turnover ratio =  $240,000/20,000$   
= 12 times.

In this example, the firm is collecting its average debtors 12 times during the given accounting period.  
Debt collection period

$$\begin{aligned} &= 365 \text{ days}/\text{Debtors turnover ratio} \\ &= 365/12 \\ &= 30.41 \text{ days.} \end{aligned}$$

On an average, the firm is taking around 31 days to collect its debts.

**Creditors Turnover Ratio** Creditors turnover ratio reveals the number of times the average creditors are paid during a given accounting period. In other words, it shows how promptly the firm is in a position to pay its creditors. It is necessary to keep close monitoring of payment schedules because it directly affects the working capital position. In case, the firm is not in a position to pay its creditors, it will affect the goodwill or further supplies may be cut off. To be on safe side, most of the firms maintain the aged list of the creditors which provides the details of when to pay, how much to pay and to whom to pay.

Creditors turnover ratio is calculated as given below:

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

From this, we can also determine the creditors payment period by using the given formula:

$$\text{Creditors Payment Period} = 365 \text{ Days}/\text{Credit Turnover Ratio}$$

### Capital Structure Ratios (Leverage Ratios) 3

Capital Structure or leverage ratio is defined as 'the financial ratio, which focusses on the long-term solvency of the firm'. The long-term solvency of the firm is always reflected in its ability to meet its long-term commitments such as payment of interest periodically without fail, repayment of principal as and when due.

All the financial institutions offering long-term finances are interested in these ratios.

The following are the most commonly used capital structure ratios:

- (a) Debt-equity ratio
- (b) Interest coverage ratio

#### Box 14.1 Is Debt-equity Ratio Important?

Debt-equity ratio is one of the principal norms followed by the financial institutions while funding the project proposals.

For small projects, the debt-equity norm is 2:1 whereas for medium and large scale projects it is 1.5:1. It is only a broad guideline, variations are permitted on a case-to-case basis. Other things remaining the same, the projects are funded based on the following considerations:

- A highly capital-intensive project is eligible for a significantly higher debt-equity ratio
- A project located in a backward area qualifies for funding based on higher debt-equity ratio
- An export-oriented unit is eligible for a higher debt-equity ratio

- (c) Ratio of Proprietors' funds to total assets
  - (i) Ratio of Fixed Assets to Proprietors' Funds
  - (ii) Ratio of Current Assets to Proprietors' Funds

**(a) Debt-Equity (D/E) Ratio** Debt-equity ratio is the ratio between outsiders' funds (debt) and insider's funds (equity). This is used to measure the firm's obligations to creditors in relation to the owners' funds. It is a measure of solvency. The yardstick for this ratio is 1:1. In other words, for every rupee of debt, there should be one rupee worth internal funds.

This is also industry/sector specific ratio. Depending upon the industry, the standard for the debt-equity ratio differs. For instance, in case of capital intensive industries such as shipping companies or steel manufacturing companies, the D/E ratio can be as high as 20:1. So this ratio has to be interpreted considering the nature of industry and competitors' D/E ratios.

A high D/E ratio implies that the creditors stake is more as compared to that of owners. In other words, if the project fails financially, there is greater risk for the creditors. This may further mean that the creditors have higher degree of control in the management of the company.

On the other hand, a low D/E ratio is desirable which means less risk to the creditors leaving higher margin of safety for the creditors. From the firm's point of view, this is also good in terms of lower commitment to pay fixed interest charges. This will deprive the company to take advantage of borrowed funds to enhance the profitability.

Debt-equity ratio is calculated as follows:

$$\text{Debt-Equity Ratio} = (\text{Debt}/\text{Equity}) \text{ or}$$

$$(\text{Outsiders' Funds}/\text{Insiders' or Shareholders' Funds})$$

Debt or outsiders' funds include debentures, bonds, long-term loans, and so on. Shareholders' funds or equity here includes share capital (both preference and equity), reserves (both general and specific), retained earnings, and such others. Equity does not only mean equity share capital. Equity here is interpreted as 'insiders' funds'. 'Debt' here means only long-term debt.

#### Example 4

Calculate Debt-Equity ratio from the data given in Example 1,

The following are the outsiders' funds:

$$\begin{aligned}\text{Outsiders' funds} &= \text{Debentures Rs. } 4,00,000 + \text{Long-term loan } 2,00,000 \\ &= \text{Rs. } 6,00,000\end{aligned}$$

$$\text{Insiders' funds} = \text{Rs. } 6,00,000.$$

(Preference share capital Rs 1,00,000 + Equity share capital Rs 1,50,000 + General Reserve Rs 2,50,000 + Profit and Loss Account Rs 100,000)

$$\begin{aligned}\text{Debt equity ratio} &= 6,00,000/6,00,000 \\ &= 1:1\end{aligned}$$

Debt equity ratio of 1:1 means that for every Re 1.00 of debt, there is an equity fund of Re 1, which meets the standard yardstick of 1:1. This is quite satisfactory.

**(b) Interest Coverage Ratio** Interest coverage ratio is calculated to judge the firm's capacity to pay the interest on debt it borrows. It gives an idea of the extent the firm's earnings may contract before it is unable to pay interest payments out of current earnings. It is a very important ratio for the financial institutions to judge the ability of the borrower to service the loan from the current year's profits. The higher the ratio, better it is. In other words, a higher ratio implies that the company has no problems in paying interest.

Interest coverage ratio is calculated as follows:

Interest Coverage Ratio =

(Net profit before Interest and Taxes/Fixed Interest Charges)

The more the number of times of coverage, the better is the solvency position of the borrower.

#### Example 5

The earnings before interest and taxes (EBIT) of a company is Rs 5,60,000. Its fixed commitments include Payment of 10 percent on 7000 debentures of Rs 100 each. It is subject to tax of 30 percent per annum.

Calculate interest coverage ratio.

Net profit before interest and taxes = Rs 5,60,000

Fixed Interest charges on the debentures =  $(7000 \times 100) \times 10\%$   
= Rs 70,000.

Interest coverage ratio =  $(5,60,000/70,000)$   
= 8 times

Interest coverage ratio of 8 times means that the net profit earnings are 8 times to the fixed interest charges payable during the year.

The more the number of times the coverage, the safer is the investment. Extending finances to such a company getting a net profit covering 8 times of its fixed charges, is a safe bet for the lender.

**(c) Ratio of Proprietors' Funds to Total Assets** This establishes the relationship between proprietors' funds and the total assets. Here, the total assets include the tangible fixed assets plus current assets. As a guideline a ratio of around 0.5:1 or 50 percent is considered as the minimum desirable. In other words, half of the tangible assets are owned by the ordinary shareholders or owners and half by contributors of other types of share and loan capital and by creditors. Intangible assets such as goodwill are not considered here because, if the business has to be sold off forcibly, goodwill may not be of any worth. This shows that the proprietors have solid stake in the organisation.

Ratio of Proprietors' Funds to Total Assets =  $(\text{Proprietors Funds}/\text{Total Assets}^*) \times 100$

#### Example 6

Compute ratio of proprietors' funds to total assets from the data given in Example 1.

*Solution*

The ratio of Proprietors' funds to Total assets can be computed as follows:

Proprietors' funds = Rs 7,00,000 (Preference share capital Rs 1,00,000 + Equity share capital Rs 1,50,000 + General reserve Rs 2,50,000 + Employee provident fund Rs 1,00,000 + Profit and loss account Rs 1,00,000)

$$\text{Total assets} = \text{Rs } 15,00,000$$

$$\text{Ratio of proprietors' funds to total assets} = (7,00,000/15,00,000) \times 100$$

$$= 46.66\%$$

This reveals that 46.66 percent of the total assets are financed by proprietors' funds. In other words, the balance (53.34%) is financed by outsider's funds. This ratio is further explained in a finer way by considering the volume of fixed assets and current assets to the proprietors' funds separately.

**(i) Ratio of Fixed Assets to Proprietors' Funds** This ratio explains whether the fixed assets have been bought from the proprietors' funds or not. By matching the long-term investment with the long-term finance, it is possible to determine whether the borrowing has been made to finance fixed assets. It is not safe to use short-term finance to buy long-term assets because when the borrowing is to be repaid, there may be a problem, as the fixed assets cannot be readily converted into cash. The long-term sources of finance can be used for buying current assets but no short-term sources of finance can be utilised to acquire fixed assets.

This ratio shows the percentage of proprietors' funds locked up in fixed assets. Normally, for industrial establishments this can be 65 percent of the proprietors' funds.

$$\text{Ratio of Fixed Assets to Proprietors' Funds} = (\text{Fixed assets}/\text{Proprietors' funds}) \times 100$$

#### Example 7

Compute ratio of fixed assets to proprietors' funds from the data given in Example 1:

From Example 1, Fixed assets are = Rs 5,75,000 and Proprietors' funds are Rs 7,00,000

$$\text{Ratio of Fixed Assets to Proprietors' Funds} = (5,75,000/7,00,000) \times 100 = 82.14\%$$

Considering that this is industrial establishment, 82 percent is on very high side. A large portion of proprietors' funds is blocked in fixed assets. This is not desirable.

**(ii) Ratio of Current Assets to Proprietors' Funds** A higher ratio of current assets to proprietors' funds is considered as financial strength to the business. It is necessary to hold adequate funds in working capital to generate profits.

This is calculated as follows:

$$\text{Ratio of current assets to proprietors' funds} = (\text{Current assets}/\text{Proprietors' funds}) \times 100$$

#### Example 8

Compute ratio of current assets to proprietors' funds from the data given in example 1:

$$\text{Ratio of current assets to proprietors' funds} = (\text{Current assets}/\text{Proprietors' funds}) \times 100$$

$$= (9,25,000/7,00,000) \times 100$$

$$= 132\%$$

## D Profitability Ratios

Profitability ratios throw light on how well the firm is organising its activities in a profitable manner. The owners expect reasonable rate of return on their investment. The firm should generate enough profits not only to meet the expectations of the owners, but also to finance the expansion activities.

The following are the eight ratios most commonly used to explain profitability

1. Gross profit ratio
2. Net profit ratio
3. Operating ratio
4. Return on investment (ROI)
  - (i) Return on capital employed
  - (ii) Return on equity
5. Earnings per share (EPS)
6. Dividend yield
7. Price/Earnings ratio (P/E ratio)
8. Earning power

**1. Gross Profit Ratio** Gross profit ratio is the ratio between gross profit to sales during a given period. It is expressed in terms of percentage. Gross profit is the difference between the net sales and the cost of goods sold.

$$\text{Gross Profit Ratio} = (\text{Gross Profit}/\text{Sales}) \times 100$$

Gross profit should be adequate to cover the operating expenses and to provide fixed charges, dividends and reserves. There is no fixed norm to judge the gross profit ratio. The higher the gross profit ratio, the better it is. Gross profit is affected by several factors such as cash profits or cash losses, stock losses, mark ups or mark downs, purchase prices, stock valuation, expenses, and so on. For instance, if the mark up or profit margin is high, the gross profit is high. For any reason, goods have to be disposed off at throwaway prices or mark down, this affects the gross profit.

### Example 9

Suppose the Net sales is 50,000 for a firm and cost of goods sold is Rs 20,000. The gross profit ratio is calculated as below:

$$\begin{aligned}\text{Gross Profit Ratio} &= (30,000/50,000) \times 100 \\ &= 60 \text{ percent.}\end{aligned}$$

In other words, 60 percent of its sales is the gross profit.

**2. Net Profit Ratio** Net profit ratio is the ratio between net profits after taxes and net sales. It indicates what portion of sales is left to the owners after operating expenses. Non-operating income such as interest on investments, gain on sale of fixed assets and so on are added to the operating profit and non-operating expenses such as loss on sale of fixed assets and so on are deducted from such profit. This is the net profit after adjusting non-operating income and non-operating expenses.

$$\text{Net profit ratio} = (\text{Net profit after taxes}/\text{Net sales}) \times 100$$

### Example 10

Suppose the net sales is 50,000 for a firm and cost of goods sold is Rs 20,000. The details of expenses are as given below:

Administration expenses	Rs 3000
Selling and distribution expense:	Rs 4000
Loss on sale of fixed asset	Rs 3000
Interest on investment	Rs 2000
Taxes 20 %	

### Computation of Net Profits

(in Rs)

Sales	50,000
Less Cost of goods sold	20,000
Gross profit	30,000
Less Administration expenses	3,000
Selling and Distr. Expenses	4,000
Net profit	22,000
Add: Interest on investments (Non-operating income)	2,000
	20,000
Less: Loss on sale of Asset	3,000
	17,000
Taxes @ 20%	3,400
<b>Net profit after taxes:</b>	<b>13,600</b>

$$\text{Net profit ratio} = (13,600/50,000) \times 100 \\ = 27.2\%$$

The higher the net profit ratio, the better is the profitability and vice versa. This ratio is widely used as a measure of overall profitability. It should be used along with operating ratio for better interpretation.

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

$$\text{Operating ratio} = (\text{Operating expenses}/\text{Net sales}) \times 100$$

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

Administrative expenses cover all office and management expenses such as salaries, office rent, insurance, director's fee, legal expenses, and so on. Selling and distribution expenses include salaries to sales staff, advertising, travelling expenses, cost of samples and so on.

Net sales is equal to 'sales less sales returns'.

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

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

Operating ratio of 60 percent means the firm has remaining 40 percent of its sales revenue as profit. It is always desirable to have a low operating ratio.

Operating expenses are more in manufacturing firms than in service rendering firms. In manufacturing firms, the operating ratio ranges from 75–85 percent of the sales. The non-manufacturing organisations find their operating ratio anywhere between 40–60 percent.

**4. Return on Investment (ROI)** Return on investment is one of the very important parameters affecting business plans. The profitability of the firm is measured in terms of return on investment. The term 'investment' may refer to total assets, capital employed or owners' equity.

$$\text{ROI} = \text{Net Profit After Taxes/Total Investment}$$

Generally, the firm may be interested in assessing the return on total capital employed; the equity shareholders are interested in return on 'equity'. Some of the important ratios under this head are:

(i) **Return on capital employed (ROCE)** This is a widely used ratio. This is the only satisfactory measure which reveals the overall performance of a firm in terms of profitability. It shows whether the funds entrusted to the management have been properly used or not. ROCE is calculated as given below:

$$\text{ROCE} = (\text{Adjusted net profits/Capital Employed})$$

Where 'adjusted' net profits refer to

Net profits duly adjusted for

1. any abnormal or non-recurring losses or gains
2. depreciation based on replacement cost of the assets
3. income from investments outside the business
4. interest on long-term liabilities (which is to be added back to the net profits for consistency)
5. income tax (always take net profits before income tax).

Net capital employed refers to the total of

1. Paid up share capital
2. Reserves (both capital and revenue reserves)
3. Debentures, if any.

(ii) **Return on equity (ROE)** This relates the net profits available to equity shareholders to the amount invested by them. The higher the ROE is, the more is the profitability and vice versa.

$$\text{ROE} = (\text{Net profits} - \text{Dividends payable to Preference shareholders})/\text{Equity share capital}$$

This ratio is compared with that of other companies. The equity shareholder can take a decision to switch over from one company to the other by selling the shares based on this ratio.

**5. Earnings Per Share (EPS)** EPS is the relationship between net profits and the number of shares outstanding at the end of the given period. This can be compared with previous years to provide a basis for assessing the company's performance.

$$\text{EPS} = (\text{Net profit after taxes}/\text{Number of shares outstanding})$$

#### Example 11

Given that the number of shares is 10,000 and the net profit after taxes for a given accounting period is Rs 4,50,000; the EPS can be calculated as follows:

$$\text{EPS} = 4,50,000 / 10,000 \\ = \text{Rs } 45.$$

The higher the EPS is, the more is likely to be the demand for the shares of that company. However, it is to be noted that EPS is one of the many factors affecting the demand for a given share.

## **6. Dividend Yield**

**Yield** refers to the amount of total return the investor will receive for a given period of time for the amount of his investment.

Dividend yield refers to the percentage return on the price paid for shares. It is calculated as given below:

$$\text{Dividend yield} = \frac{\text{Nominal or face value of the share}}{\text{Cost or market price of the share}} \times \% \text{ dividend per annum}$$

### **Example 12**

Given that current market price of a share Rs 300; face value of the share is Rs 100; percentage of dividend declared is 20 percent, then yield is

$$\text{Dividend yield} = (300/100) \times 20 \\ = 6 \text{ per annum}$$

In general, yield and risk are inversely proportional. In other words, the higher the yield reflects that the investments are riskier and the lower the yield, safer are the investments.

## **7. Price/Earnings Ratio**

This is the share price divided by the earnings per share.

$$\text{Price/Earnings Ratio} = (\text{Market price per share} / \text{Earnings per share})$$

### **Example 13**

Given that market price of a share is Rs. 340 and EPS is 10, calculate P/E ratio.

$$\text{Price/Earnings Ratio} = (\text{Market price per share} / \text{Earnings per share}) \\ \text{EPS} = (340/10) \\ = 34$$

Thus a share with a market price of Rs 340 and an EPS of Rs 10 would have a P/E ratio of Rs 34.

Shares of companies with good profit record tend to have high P/E ratio and usually a low yield. On the other hand, companies with poor profit record will usually have a low P/E ratio.

The ratios of P/E, EPS and yield are very useful to take 'buy or sell' decisions in respect of company shares. Investors make use of the P/E ratio to assess the 'expensiveness' of a given share. In general, high P/E ratio indicates that the stock market price has been pushed up in anticipation of an expected rapid improvement in earnings. This makes the share now expensive. A low P/E ratio implies that investors do not expect much growth in the company's earnings in the nearest future.

In other words, selling a share with P/E ratio 20 at a price of Rs 100 is better than selling a share with P/E ratio 30 at a price of Rs 100. It is because the share with P/E ratio of 30 is more promising.

## **8. Earning Power as a Measure of Overall Profitability**

A firm can sell small quantities at higher prices or large quantities at relatively lower prices to continue to be making profits. In other words, the earning power of the company is based on two factors: (a) net profit margin and (b) the investment turnover.

These factors together present a complete picture of the effectiveness of the firms' operations. The percentage of return on investment (ROI) can highlight the firms operating efficiency. ROI reflects the earning power and it is the product of net profit margin and investment turnover.

$$\begin{aligned} \text{Earning power} &= \text{Return on investment} \\ &= \text{Net profit margin} \times \text{Investment turnover} \\ \text{Earning power} &= \frac{\text{Net profit after taxes}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total capital}} \\ &= \frac{\text{Net profit after taxes}}{\text{Total capital}} \end{aligned}$$

Here the total capital may mean (a) total assets or (b) equity share capital.

The following example illustrates the concept of earning power:

## **UNIT – V**

### **CAPITAL AND CAPITAL BUDGETING**

#### **MEANING OF CAPITAL:**

Capital is defined as wealth, which is created over a period of time through abstinence to spend. There are different forms of capital property, cash or titles to wealth. It is the aggregate of funds used in the short run and long run. An economist views capital as the value total assets available with the business. An accountant sees the capital as the difference between the assets and liabilities.

The term capital refers to the total investment of the company in terms of money, and assets. It is also called as total wealth of the company. When the company is going to invest large amount of finance into the business, it is called as capital. Capital is the initial and integral part of new and existing business concern.

The capital requirements of the business concern may be classified into two categories:

- (a) Fixed capital
- (b) Working capital.

#### **SIGNIFICANCE OF CAPITAL**

**1.To promote a business:** Capital is required at the promotion stage. A large variety of expenses have to be incurred on project reports, feasibility studies and reports, preparation and filing of various documents, and for meeting various other expenses in connection with the raising of capital from the public.

**2.To conduct business operations smoothly:** Business firms also need capital for the purpose of conducting their business operations such as research and development, advertising, sales promotion, distribution and operation expenses.

**3.To expand and diversify:** The firm requires a lot of capital for expansion and diversification purposes. This includes development expense such as purchase of sophisticated machinery and equipment and also payment towards sophisticated technology.

**4.To meet contingencies:** A firm needs funds to meet contingencies such as sudden fall in sales, major litigation, nature calamities like fire, and so on.

**5.To pay taxes:** The firm has to meet its statutory commitments such as income tax and sales tax, excise duty and so on.

**6.To pay dividends and interests:** The business has to make payment towards dividends and its interest to shareholders and financial institutions respectively.

**7.To replace the assets:** The business needs to replace its assets like plant and machinery after a certain period of use. For this purpose the firm needs funds to make suitable replacement of assets in place of old and worn out assets.

**8.To support welfare programmes:** The company may also have to take up social welfare programmes such as literacy drive, and health camps, It may have to donate to charitable trusts, educational institutions or public services organizations.

**9.To wind up:** At the time of winding up, the company may need funds to meet liquidation expenses

## **TYPES OF CAPITAL**

- A) Fixed capital
- B) Working capital

### **A)FIXED CAPITAL**

- Fixed capital is that portion of capital which invested in acquiring long term assets such as land and buildings, plant and machinery, furniture and fixtures, and so on, fixed capital forms the skeleton of the business.
- It provides the basic assets as per the business needs.

#### **Features of Fixed Capital:**

**1.Permanent in nature:** fixed capital is more or less permanent in nature, it is generally not withdrawn as long as the business carries on its business.

**2.Profit generation:** fixed asset are the sources of profits but they can never generate profits by themselves. They use stocks, cash and debtors to generate profits.

**3.Low liquidity:** the fixed assets cannot be converted into cash quickly. Liquidity refers to conversion of assets into cash.

**4.Amount of fixed capital :** the amount of fixed capital of a company depends on a number of factors such as size of the company, nature of business, method of production and so on. A manufacturing company such as steel factory may require relatively large finance when compared to a service organization such as a software company.

**5.Utilized for promotional and expansion:** the fixed capital is mostly needed at the time of promoting the company to purchase the fixed assets or at the time of expansion. In other words, the need for fixed capital arises less frequently.

#### **Types of fixed assets**

**1.Tangible fixed assets :** these are physical items which can be seen and touched. Most of the common fixed assets are land, buildings, machinery, motor vehicles, furniture and so on.

**2.Intangible fixed assets :** these do not have physical form. They cannot be seen or touched. But these are very valuable to business. Examples are goodwill, brand names, trademarks, patents, copy rights and so on.

**3.Financial fixed assets :** these are investments in shares, foreign currency deposits, government bonds , shares held by the business in other companies and so on.

## B) WORKING CAPITAL

- Working capital is the flesh and blood of the business.
- It is that portion of capital that makes a company work.
- It is not just possible to carry on the business with only fixed assets.
- Working capital is a must, working capital is also called circulating capital.
- **It is used to meet regular or recurring needs of the business.**
- The regular needs refer to the purchase of materials, payment of wages and salaries, expenses like rent, advertising, power and so on.
- In short , **working capital is the amounts needed to cover the cost of operating the business.**

### Definition of working capital

**Working capital define as a current assets excess of current liabilities**

Its also define in mathematically formula as

$$\text{working capital} = \text{current assets} - \text{current liabilities}$$

According to the definition of **Bonneville**, “any acquisition of funds which increases the current assets increase the Working Capital also for they are one and the same”.

Working capital is needed to meet the following purpose:

- Purchase of raw material
- Payment of wages to workers
- Payment of day-to-day expenses
- Maintenance expenditure etc.

### Features of working capital

**1.Short life span:** working capital changes in its form cash to stock, stock to debtors, debtors to cash, the cash balances may be kept idle for a week or so, debtors have a life span of a few months , raw materials are held for a short – time until they go into production, finished goods as held for a short – time until they are sold.

**2.Smoothly flow of operations:** adequate amount of working capital enables the business to conduct its operations smoothly. It is there fore, called the flesh and blood of the business.

**3.Liquidity:** the assets represented by the working capital can be converted into cash quickly within a short period of time unlike fixed assets.

**4.Amount of working capital:** the amount of working capital of a business depends on many factors such as size and nature of the business, production and marketing policies, business cycles and so on.

**5.Utilized for payment of current expenses:** the working capital is used to pay for current expenses such as suppliers of raw materials, payment of wages and salaries, rent and other expenses and so on.

### Components of working capital:

**Current assets:** current assets are those assets which are converted into cash with in accounting period or within the year. For example, cash in hand, cash at bank, sundry debtor, bill receivable, prepaid expenses etc.

**Current liabilities:** current liabilities are those liabilities to pay outside within the year. For example sundry creditor, bill payable, bank overdraft, outstanding expenses.

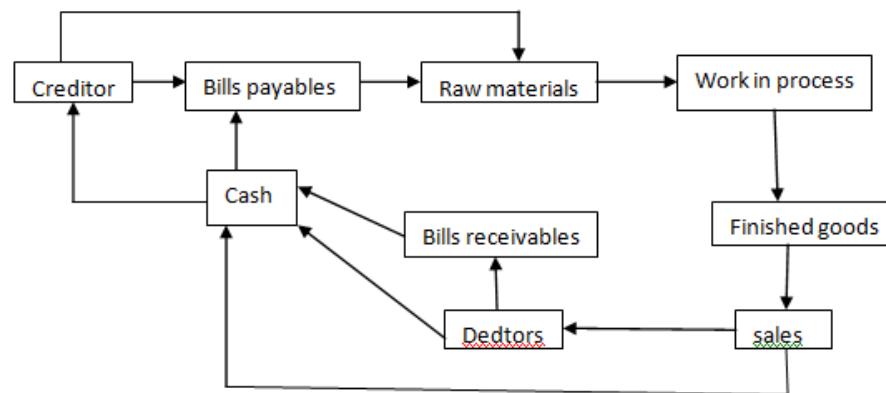
### Gross working capital:

In the broader sense, the term working capital refers to the gross working capital. The notion of the gross working capital refers to the capital invested in total current assets of the enterprise. Current assets are those assets, which in the ordinary course of business, can be converted into cash within a short period, normally one accounting year.

### Net working capital:

In a narrow sense, the term working capital refers to the net working capital. Networking capital represents the excess of current assets over current liabilities.

## WORKING CAPITAL CYCLE



### Factors determining the working capital requirements

#### 1.Nature or character of business:

The working capital requirements of a firm basically depend upon the nature of its business. Public utility undertakings like electricity, water supply and railways need very limited working capital as their sales are on cash and are engaged in provision of services only. On the other hand, trading firms require more investment in inventories, receivables and cash and such they need large amount of working capital. The manufacturing undertakings also require sizable working capital.

#### 2.Size of business or scale of operations:

The working capital requirements of a concern are directly influenced by the size of its business, which may be measured in terms of scale of operations. Greater the size of a business unit, generally, larger will be the requirements of working capital. However, in some cases, even a smaller concern may need more working capital due to high overhead charges, inefficient use of available resources and other economic disadvantages of small size.

#### 3.Production policy:

If the demand for a given product is subject to wide fluctuations due to seasonal variations, the requirements of working capital, in such cases, depend upon the production policy. The production could be

kept either steady by accumulating inventories during slack periods with a view to meet high demand during the peak season or the production could be curtailed during the slack season and increased during the peak season. If the policy is to keep the production steady by accumulating inventories it will require higher working capital.

#### **4.Manufacturing process/Length of production cycle:**

In manufacturing business, the requirements of working capital will be in direct proportion to the length of manufacturing process. Longer the process period of manufacture, larger is the amount of working capital required, as the raw materials and other supplies have to be carried for a longer period.

#### **5.Seasonal variations:**

If the raw material availability is seasonal, they have to be bought in bulk during the season to ensure an uninterrupted material for the production. A huge amount is, thus, blocked in the form of material, inventories during such season, which give rise to more working capital requirements. Generally, during the busy season, a firm requires larger working capital than in the slack season.

#### **6.Working capital cycle:**

In a manufacturing concern, the working capital cycle starts with the purchase of raw material and ends with the realization of cash from the sale of finished products. This cycle involves purchase of raw materials and stores, its conversion into stocks of finished goods through work-in progress with progressive increment of labour and service costs, conversion of finished stock into sales, debtors and receivables and ultimately realization of cash. This cycle continues again from cash to purchase of raw materials and so on. In general the longer the operating cycle, the larger the requirement of working capital.

#### **7.Credit policy:**

The credit policy of a concern in its dealings with debtors and creditors influences considerably the requirements of working capital. A concern that purchases its requirements on credit requires lesser amount of working capital compared to the firm, which buys on cash. On the other hand, a concern allowing credit to its customers shall need larger amount of working capital compared to a firm selling only on cash.

#### **8.Business cycles:**

Business cycle refers to alternate expansion and contraction in general business activity. In a period of boom, i.e., when the business is prosperous, there is a need for larger amount of working capital due to increase in sales. On the contrary, in the times of depression, i.e., when there is a down swing of the cycle, the business contracts, sales decline, difficulties are faced in collection from debtors and firms may have to hold large amount of working capital.

#### **9.Rate of growth of business:**

The working capital requirements of a concern increase with the growth and expansion of its business activities. The retained profits may provide for a part of working capital but the fast growing concerns need larger amount of working capital than the amount of undistributed profits.

## CAPITALIZATION

Capitalization is one of the most important parts of financial decision, which is related to the total amount of capital employed in the business concern. Understanding the concept of capitalization leads to solve many problems in the field of financial management. Because there is a confusion among the capital, capitalization and capital structure.

### Meaning of Capitalization

Capitalization refers to the process of determining the quantum of funds that a firm needs to run its business. Capitalization is only the par value of share capital and debenture and it does not include reserve and surplus.

### Definition of Capitalization

Capitalization can be defined by the various financial management experts. Some of the definitions are mentioned below:

According to **Guthman and Dougall**, “capitalization is the sum of the par value of stocks and bonds outstanding”.

“Capitalization is the balance sheet value of stocks and bonds outstands”. — **Bonneville and Dewey**

According to **Arhur. S. Dewing**, “capitalization is the sum total of the par value of all shares”.

## TYPES OF CAPITALIZATION

Capitalization may be classified into the following three important types based on its nature:

- Over Capitalization
- Under Capitalization

### Over Capitalization

Over capitalization refers to the company which possesses an excess of capital in relation to its activity level and requirements. In simple means, over capitalization is more capital than actually required and the funds are not properly used.

According to **Bonneville, Dewey and Kelly**, over capitalization means, “when a business is unable to earn fair rate on its outstanding securities”.

### *Example*

A company is earning a sum of Rs. 50,000 and the rate of return expected is 10%. This company will be said to be properly capitalized. Suppose the capital investment of the company is Rs. 60,000, it will be over capitalization to the extent of Rs. 1,00,000. The new rate of earning would be:  
 $50,000/60,000 \times 100 = 8.33\%$

When the company has over capitalization, the rate of earnings will be reduced from 10% to 8.33%.

## **Causes of Over Capitalization**

Over capitalization arise due to the following important causes:

- Over issue of capital by the company.
- Borrowing large amount of capital at a higher rate of interest.
- Excessive payment for acquisition of goodwill.
- High rate of taxation.
- Under estimation of capitalization rate.

## **Effects of Over Capitalization**

Over capitalization leads to the following important effects:

- Reduce the rate of earning capacity of the shares.
- Difficulties in obtaining necessary capital to the business concern.
- It leads to fall in the market price of the shares.
- It creates problems on re-organization.
- It leads under or misutilisation of available resources.

## **Remedies for Over Capitalization**

Over capitalization can be reduced with the help of effective management and systematic design of the capital structure. The following are the major steps to reduce over capitalization.

- Efficient management can reduce over capitalization.
- Redemption of preference share capital which consists of high rate of dividend.
- Reorganization of equity share capital.
- Reduction of debt capital.

## **Under Capitalization**

Under capitalization is the opposite concept of over capitalization and it will occur when the company's actual capitalization is lower than the capitalization as warranted by its earning capacity. Under capitalization is not the so called inadequate capital.

Under capitalization can be defined by **Gerstenberg**, “a corporation may be under capitalized when the rate of profit is exceptionally high in the same industry”.

**Hoagland** defined under capitalization as “an excess of true assets value over the aggregate of stocks and bonds outstanding”.

## **Causes of Under Capitalization**

Under capitalization arises due to the following important causes:

- Under estimation of capital requirements.
- Under estimation of initial and future earnings.
- Maintaining high standards of efficiency.
- Conservative dividend policy.
- Desire of control and trading on equity.

## **Effects of Under Capitalization**

Under Capitalization leads certain effects in the company and its shareholders.

- It leads to manipulate the market value of shares.
- It increases the marketability of the shares.
- It may lead to more government control and higher taxation.
- Consumers feel that they are exploited by the company.
- It leads to high competition.

## **Remedies of Under Capitalization**

Under Capitalization may be corrected by taking the following remedial measures:

1. Under capitalization can be compensated with the help of fresh issue of shares.
2. Increasing the par value of share may help to reduce under capitalization.
3. Under capitalization may be corrected by the issue of bonus shares to the existing shareholders.
4. Reducing the dividend per share by way of splitting up of shares.

# **METHODS AND SOURCES OF FINANCE**

Method of finance is the type of finance used—such as a loan or a mortgage. The source of finance would be where the money was obtained from—a loan may be obtained from a bank while the mortgage may be obtained from a credit society. From a financial statement, we can read in what form the capital is tied up (fixed assets or current assets) and how these are financed (from own capital or borrowed funds). It is necessary to notice the difference between methods and sources of finance to identify which type of asset can be bought from what source of funds. For example, fixed asset can be bought only from long-term source of funds. If you buy a long-term asset utilising funds from short-term sources, the asset has to be sold off to repay the short-term loan, in the event of pressure to repay the loan.

## **METHODS OF FINANCE**

The following are the common methods of finance:

- Long-term finance
- Medium-term finance
- Short-term finance

Now we will discuss each of these methods identifying the sources under each method:

## **Sources of Finance**

The following are the different sources under various methods of finance.

### **I. LONG-TERM FINANCE**

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

## **Own Capital**

Irrespective of the form of organisation such as soletrader, partnership or a company, the owners of the business have to invest their own finances to start with. Money invested by the owners, partners or promoters is permanent and will stay with the business throughout the life of the business.

## **Share Capital**

Normally in the case of a company, the capital is raised by issue of shares. The capital so raised is called share capital. The liability of the shareholder is limited to the extent of his contribution to the share capital of the company. The shareholder is entitled to dividend in case the company makes profits and the directors announce dividend formally in the general body meetings. The share capital can be of two types: *Preference share capital* and *equity share capital*. The salient features of preference share capital and ordinary share capital are discussed below:

**Preference Share Capital** Capital raised through issue of preference shares is called preference share capital.

**Preference share** A preference shareholder enjoys two rights over equity shareholders: (a) right to receive fixed rate of dividend and (b) right to return of capital. After settling the claims of outsiders, preference shareholders are the first to get their dividend and then the balance will go to the equity shareholders. However, the preference shareholders do not have any voting rights in the annual general body meetings of the company. This deprives them of the right to participate in the management of the affairs of the company.

**Types of preference shares** Preference shares are of five types. They are:

1. *Cumulative preference share* A cumulative preference shareholder gets his right to the arrears of dividend cumulated over a period of time. If the company is not in a position to pay dividends during a particular year due to paucity of profits, it has to pay the same to the cumulative preference shareholders when it makes profits. In other words, the holders of cumulative preference shares enjoy the right to receive, when profits permit, the dividend missed in the years when the profits were nil or inadequate.
2. *Non-cumulative preference shares* The holders of these shares do not enjoy any right over the arrears of dividend. Hence the unpaid dividend in arrears cannot be claimed in future.
3. *Participating preference shares* The holder of these shares enjoys the dividend two times. They get their normal fixed rate of dividend as per their entitlement. They participate again along with the equity shareholders in the distribution of profits.
4. *Redeemable preference shares* These shares are repaid at the end of a given period. The period of repayment is stipulated on each share.
5. *Non-redeemable preference shares* These shares continue as long as the company continues. They are repaid only at the end of the lifetime of the company.

**Equity Share Capital** Capital raised through issue of equity share is called equity share capital. An equity share is also called ordinary share. An equity shareholder does not enjoy any priorities such as those enjoyed by a preference shareholder. But an equity shareholder is entitled to voting rights as many as the number of shares he holds. The profits after paying all the claims belong to the equity shareholders. In case

of loss, they are the first to suffer the losses. Equity shareholders are the real *risk bearers* of the company. But at the same time, they are entitled for the whole surplus of the profits after payment of dividends to preference shareholders. Therefore, the rate of dividend on equity shares is not fixed.

## Retained Profits

The retained profits are the profits remaining after all the claims. They form a very significant source of finance. Retained profits form good source of working capital. Particularly in times of growth and expansion, retained profits can be advantageously utilised.

## Long-term Loans

There are specialised financial institutions offering long-term loans, provided the business proposal is feasible. The promoters should be able to offer assets of the business as security to avail of this source.

## Debentures

Debentures are the loans taken by the company. It is a certificate or letter issued by the company under its common seal acknowledging the receipt of loan. A debenture holder is the creditor of the company. A debenture holder is entitled to a fixed rate of interest on the debenture amount. Payment of interest on debenture is the first charge against profits. Apart from the loans from financial institutions, a company may raise loans through debentures. This is an additional source of long-term finance. The payment of interest and principal amounts on these debentures is subject to the terms and conditions of issue of debentures.

The debentures are of different types based on the terms and conditions. There is no standard list. The success of the finance manager lies in designing an instrument suitable to the needs of the investors and which will pull in as much funds as possible. The following are the common types of debentures:

**1. Convertible Debentures** These debentures are converted into equity shares after the period mentioned in the terms and conditions of issue. In terms of cost, debentures are cheaper than the equity shares. Where the company is not sure of good profits to sustain the size of equity, it prefers to issue convertible debentures. These debentures continue as loan for the defined period. These are converted into equity shares on the specified date. Then onwards, these shareholders will be entitled to dividend, which will be normally higher than the rate of interest on debentures.

**2. Partly Convertible Debentures** A portion of debentures is to be converted into equity shares and the balance portion continues as loan.

**3. Non-convertible Debentures** These debentures will not be converted into equity shares. They continue as loan till the date of payment.

**4. Secured Debentures** These debentures are safe because the assets of the company are offered as security towards the payment of the debentures. Newly promoted companies issue secured debentures to create confidence among the investors.

**5. Partly Secured Debentures** These debentures are partly covered by the security. In other words, the security value is lesser than the face value of the debentures issued.

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

**7. Redeemable Debentures** These debentures are repaid on a specified date.

**8. Non-redeemable Debentures** These are repaid only at the end of the lifetime of the company.

## Government Grants and Loans

Government may provide long-term finance directly to the business houses or by indirectly subscribing to the shares of the companies. The government gives loans only if the project satisfies certain conditions, such as setting up a project in a notified (backward) area, or ventures into projects which are beneficial for the society as a whole.

## II. MEDIUM-TERM FINANCE

Medium-term finance refers to such sources of finance where the repayment is normally over one year and less than three years. This is normally utilised to buy or lease motor-vehicles, computer equipment, or machinery whose life is less than three years. The sources of medium-term finance are as given below:

### Bank Loans

Bank loans are extended at a fixed rate of interest. Repayment of the loan and interest are scheduled at the beginning and are usually directly debited to the current account of the borrower. These are secured loans.

### Hire-purchase

It is a facility to buy a fixed asset while paying the price over a long period of time. In other words, the possession of the asset can be taken by making a down payment of a part of the price and the balance will be repaid with a fixed rate of interest in agreed number of instalments. The buyer becomes the owner of the asset only on payment of the last instalment. The seller is the owner of the asset till the last instalment is paid. In case there is any default in payment, the seller can reserve the right of collecting back the asset. Today, most of the consumer durables such as cars, refrigerators, TVs and so on, are sold on hire-purchase basis. It provides an opportunity to keep using the asset much before the full price is paid.

### Leasing or Renting

Where there is a need for fixed assets, the asset need not be purchased. It can be taken on lease or rent for specified number of years. The company who owns the asset is called *lessor* and the company which takes the asset on lease is called *lessee*. The agreement between the lessor and lessee is called a *lease agreement*. On the expiry of the lease agreement, the owner takes the asset back into his custody. Under lease agreement, ownership to the asset never passes. Only possession of the asset passes from lessor to the lessee. Lease is not a loan. But when the business wants a certain asset for a short/medium period, lease can significantly reduce the financial requirements of the business to buy the asset.

### Venture Capital

This form of finance is available only for limited companies. Venture capital is normally provided in such projects where there is relatively a higher degree of risk. For such projects, finance through the conven-

tional sources may not be available. Many banks offer such finance through their merchant banking divisions, or specialist banks which offer advice and financial assistance. The financial assistance may take the form of loans and venture capital. In the case of viable or feasible projects, the merchant banks may participate in the equity also. In return, they expect one or two (depending up on the volume of funds pumped in) director positions on the board to exercise the control on the company matters. The funds, so provided by the venture capital, can be used for acquiring another company or launching a new product or financing expansion and growth.

### III. SHORT-TERM FINANCE

Short-term finance is that finance which is available for a period of less than one year. The following are the sources of short-term finance:

#### Commercial Paper (CP)

It is a new money market instrument introduced in India in recent times. CPs are issued usually in large denominations by the leading, nationally reputed, highly rated and credit worthy, large manufacturing and finance companies in the public and private sector. The proceeds of the issue of commercial paper are used to finance current transactions and seasonal and interim needs for funds. Reliance Industries is one of the early companies which issued Commercial Paper.

#### Bank Overdraft

This is a special arrangement with the banker where the customer can draw more than what he has in his savings/current account subject to a maximum limit. Interest is charged on a day-to-day basis on the actual amount overdrawn. This source is utilised to meet the temporary shortage of funds.

#### Trade Credit

This is a short-term credit facility extended by the creditors to the debtors. Normally, it is common for the traders to buy the materials and other supplies from the suppliers on credit basis. After selling the stocks, the traders pay the cash and buy fresh stocks again on credit. Sometimes, the suppliers may insist on the buyer to sign a bill (bill of exchange). This bill is called bills payable.

#### Debt Factoring or Credit Factoring

Debt Factoring is the arrangement with factor where the trader agrees to sell its accounts receivable or debtors at discount to the specialised dealers called factors. In the case of Credit Factoring, the trader agrees to sell his accounts payables (at premium).

#### Example

For example: X sells Y goods worth Rs 5,000. Y cannot pay cash immediately. He agrees to pay after two months. X wants cash immediately. Here X enters into a debt factoring agreement with Z who agrees to pay Rs 4,500 immediately to Y and agrees to collect Rs 5,000 after two months from Y. In this example, Z is called the *factor*. In the same example, if Y enters into an agreement with the factor, the factor pays Rs 5,000 to X and collects Rs 5,500 from Y after two months. This is called *credit factoring*.

Where the business finds its financial resources tied up in the form of debtors who are not paying on time, factoring is a good relief.

A factoring company buys these debts and provides certain additional services, for example:

- It will lend up to 70–80 per cent of outstanding debts
- It will deal with all the paper work of collecting the debts
- It will insure against non-payment of debts.

Factoring frees money due to the business and the same can be utilised for growth and expansion.

### **Advance from Customers**

It is customary to collect full or part of the order amount from the customers in advance. Such advances are useful to meet the working capital needs.

### **Short-term Deposits from the Customers, Sister Companies and Outsiders**

It is normal to find the supermarkets and other trading organisations inviting deposits of six months to one year duration. As an incentive, such deposit holders may be given 5–10 per cent discount on the purchases.

### **Internal Funds**

Internal funds are generated by the firm itself by way of secret reserves,\* depreciation provisions, taxation provisions, retained profits and so on and these can be utilised to meet the urgencies.

## ESTIMATION OF CASH INFLOWS AND OUTFLOWS

### Estimation of Cash Inflows

Cash inflows refer to cash receipts. It does not refer to future incomes. It may be calculated for a particular project or asset or for the whole business for one year or series of years.

Estimation of amount and the timing of the cash flows are very crucial stages. The cash inflows are determined on an after-tax basis, that is, from the gross inflows, deduct the cash expenses and depreciation,\* and lastly, taxes. The following is the format generally used to compute the cash inflows:

#### Estimation of cash inflows

Year	Cash revenue	Cash expenses	Cash flow before taxes (CFBT)	Depreciation	Taxable income	Taxes	Cash flow after taxes (CFAT)	Cash inflows
A	b	c	d = (b - c)	e	f = (d - e)	g	h = (f - g)	i = (h + e)

To determine the cash inflows, add back the depreciation to the CFAT.

#### Example 1

Suppose an asset costing Rs 25,000 has 5 years of life and is expected to yield Rs 20,000; 30,000; 35,000; 30,000 and 25,000. Its operating cash expenses are 40 percent of the estimated revenues of each year. The asset is subject to 20 percent depreciation. The company is subject to 30 percent of income tax. Estimate the cash inflows for years 1 to 5.

$$\text{Depreciation is calculated as} = \frac{(\text{Cost of the asset} + \text{Installation costs}) - \text{Scrap}}{\text{No. of life in years}}$$

There is no information about the installation cost or scrap value. Hence these are ignored here.

$$\text{In this example, the depreciation per year is} = \frac{25,000}{5} = \text{Rs } 5,000$$

#### Estimation of cash inflows

Year	Cash revenue	Cash expenses @ 40% of receipts	Cash flow before taxes (CFBT)	Depreciation	Taxable income @30%	Taxes @30%	Cash flow after taxes	Cash inflows
a	b	c	d = (b - c)	e	f = (d - e)	g	h = (f - g)	i = (h + e)
1	20,000	8,000	12,000	5,000	7,000	2,100	4,900	9,900
2	30,000	12,000	18,000	5,000	13,000	3,900	9,700	14,700
3	35,000	14,000	21,000	5,000	16,000	4,800	9,600	14,600
4	30,000	12,000	18,000	5,000	13,000	3,900	9,700	14,700
5	25,000	10,000	15,000	5,000	10,000	3,000	7,000	12,000

- \* 1. The diminution or reduction in the value of the asset due to wear and tear, efflux of time or obsolescence is called depreciation.
- 2. The method of depreciation mostly used in capital budgeting decisions is 'straight line method' where the book value less scrap is equally adjusted over the life of the asset.

In the process of estimation of cash inflows, the important factors are the operating cash expenses, depreciation and taxes. With any change in any of these variables, the cash flows also vary.

### Example 2 Estimation of cash flows

Srikanth Industries is considering the purchase of a new machine which will mechanise the presently carried out manual operations. The following is the data about the two alternative models. Estimate the net cash inflows. The firm is subject to a tax of 30 percent per annum.

	<i>Machine A</i>	<i>Machine B</i>
Cost (Rs)	1,00,000	1,50,000
Life (in years)	5	7
Cost of indirect material p.a. (Rs)	2,000	3,000
Savings in scrap p.a. (Rs)	15,000	18,000
Savings in direct wages:		
Employees required (No.)	5	6
Wages per employee (Rs)	4,000	5,000
Additional cost of maintenance p.a. (Rs)	5,000	6,000
Additional cost of supervision p.a. (Rs)	3,000	6,000

*Solution*

### Profitability Statement

	<i>(in Rs)</i>	
	<i>Machine A</i>	<i>Machine B</i>
Savings per annum:		
Scrap	15,000	18,000
Wages	20,000	30,000
	35,000	48,000
Less: Estimated additional costs:		
Indirect material	2,000	3,000
Maintenance	5,000	6,000
Supervision	3,000	6,000
Profits before tax	10,000	15,000
Less Taxes (30% p.a.)	25,000	33,000
Cash flows after taxes (CFAT)	7,500	9,900
	17,500	23,100

### Estimation of Cash Outflows

Cash outflows refer to the amounts of cash going out of the business. It may be calculated for a particular project or asset or for the whole business for one year or series of years. It constitutes the sum of all the outflows (including the cost of the asset and installation) and amounts introduced or withdrawn periodically. The same can be outlined as given below:

Determination of Cash Outflows	<i>Rs</i>
Cost of new asset	<u>XXX</u>
Add: Installation cost	<u>XXX</u>
	<u>XXX</u>
Add: working capital introduced	<u>XXX</u>
	<u>XXX</u>
Less: working capital withdrawn, if any	<u>XXX</u>
	<u>XXX</u>
Less: Sale proceeds of old asset	<u>XXX</u>
	<u>XXX</u>
Add: taxes on the sale proceeds of asset	<u>XXX</u>
	<u>XXX</u>
Less: Capital gains or relief on capital losses	<u>XXX</u>
	<u>XXX</u>
Less investment allowance*, if any	<u>XXX</u>
Net Cash outflows	<u>XXX</u>

## Capital Budgeting Proposal Illustrated

A business needs a new machine and has to make a choice between machine Y and machine Z. The initial cost and the net cash flow over five years (income less running expenses but not depreciation) to the business have been calculated for each machine as follows:

	<i>Machine Y (Rs)</i>	<i>Machine Z (Rs)</i>
Initial cost	20,000	28,000
Net cash flow		
1	8,000	10,000
2	12,000	12,000
3	9,000	12,000
4	7,000	9,000
5	6,000	9,000

Only one machine is needed, and at the end of five years, the machine will have no value and will be scrapped. To finance the project the business can borrow money at 10 percent per annum. Which machine should be chosen?

This is a real situation confronting business with two alternatives. Sometimes the alternatives could be more. Which one is to be preferred?

These decisions are to be analysed based on their profitability. To understand this, let us see the different methods of investment appraisal.

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\* Investment allowance is granted on the fixed assets such as plant and machinery and so on in the year in which they are put to use. This can be deducted from the cost of new project under Income Tax Act, 1961.

## METHODS OF CAPITAL BUDGETING

Capital budgeting decisions are made under different criteria. How are these criteria determined. These criteria differ in concepts. Some use thumb rules and some use logic and scientific approach. So, based on these criteria, the methods of capital budgeting can be classified as

- (a) Traditional methods
  - (i) Payback period
  - (ii) Accounting rate of return method
- (b) Discounted cash flow methods.
  - (i) Internal rate of return (IRR) method
  - (ii) Net present value (NPV) method.

Let us discuss these methods in detail.

### Payback Method

Under payback method, the decision to accept or reject a proposal is based on its payback period. *Payback period* refers to the period within which the original cost of the project is recovered. It is calculated by dividing the cost of the project by the annual cash inflows.

$$\text{Payback period} = \frac{\text{Cost of the project}}{\text{Annual cash inflows}}$$

The shorter the length of the payback period, the better is the project in terms of paying back the original investment. Particularly where the future is uncertain, the companies favour this method. The earlier the original investment is recovered, the better it is, in terms of safety and liquidity. Where the cashflows are uniform throughout, they are said to even. Consider this example.

#### Where the cash inflows are even

##### Example 3

The cost of a project is Rs 50,000 the annual cash inflows for the next 4 years are Rs 25,000. What is the payback period for the project?

$$\begin{aligned}\text{Payback period} &= \frac{\text{Cost of the project}}{\text{Annual cash inflows}} \\ &= \frac{50,000}{25,000} \\ &= 2 \text{ years.}\end{aligned}$$

If another project has 3 years, for example, it is better to choose the above project because it has *less* payback period.

#### Where the cashflows are uneven

Where the cash flows are not uniform, they are said to be uneven. In such a case take the cumulative cash inflows and see how much time it takes to get back the original investment. Consider the following example.

#### Example 4

The cost of a project is Rs 50,000 which has an expected life of 5 years. The cash inflows for next 5 years are Rs 24,000; Rs 26,000; Rs 20,000; Rs 17,000 and Rs 16,000 respectively. Determine the payback period.

Table 17.1

Cash Inflows and Cumulative Cash Inflows for the Project

Year	Cash inflows (Rs)	Cumulative cash inflows (Rs)
1	24,000	24,000
2	26,000	50,000
3	20,000	70,000
4	17,000	87,000
5	16,000	1,03,000

Table 17.1 shows that the original investment can be recovered by the end of the second year and hence the project has 2 years of payback period.

So the payback period is 2 years.

#### Where the cash inflows are same, but timing is different

At times, the cash inflows may be different each year, but the total cash inflows over the life of the project may be the same. Sometimes, the payback period may be similar. In such a case, observe the timing of the cash inflows. Choose the project which has higher cash inflows in the initial years. Check the following example.

#### Example 5

Two projects, costing Rs 20,000 each, have the following cash inflows. Both have the same payback period. Which one do you choose and why?

Table 17.2

Same total cash inflows with a difference in size and timing

(Figure in Rupees)

Year	Project A		Project B
	1	2	
I	8,000		12,000
II		12,000	8,000
III	10,000		12,000
IV		9,000	7,000
V	7,000		7,000
Total		46,000	46,000

### Solution

Table 17.2 shows equal cash inflows and also the equal payback of two years. But the timing of cash inflows is different. Project B yields Rs 12,000 as against Rs 8,000 by A. This has more value for next four years. Besides this, earlier cash inflows are likely to prove more accurate estimates than later cash flows.

### Advantages

1. *Easy to calculate and understand* Calculation of payback period does not involve any complicated formulae. It is easy to calculate and understand.
2. *Liquidity is emphasised* It emphasises on the earlier cash flows which are more likely to be accurate than later cash flow. In other words, a short payback period also reduces the risk. (The more the risk, it is more likely that a part or whole of the investment will be lost).
3. *Reliable technique in volatile business conditions* It is a reliable technique for project appraisal, particularly in the areas of volatile business conditions such as change in technology, changing fashions or customer's tastes/preferences.

### Disadvantages

1. *Post-payback earnings ignored* This method ignores the earnings after the payback period. It ignores the total life of the project and the total profitability of the investment.
2. *Timing of cash flows ignored* This method does not consider the timing of cash flows. All the cash flows are given equal weightage.
3. *Liquidity is over-emphasised* The liquidity of the proposal is over-emphasised by choosing only cash inflows. Other factors such as cost of proposal or cost of capital are ignored.

Despite the above limitations, the pay back method continues to be very popular and widely put to use particularly where there is a high degree of uncertainty.

### Accounting Rate of Return (ARR) Method

Accounting rate of return refers to the ratio of annual profits after taxes to the average investment. The average investment is equal to half of the original investment. Accounting rate of return is also called average rate of return.

$$ARR = \frac{\text{Average annual profits after taxes}}{\text{Average investment}}$$

Where average investment is half of the capital outlay (that is, Capital outlay divided by 2). Average capital employed is calculated to the usual accounting convention that the original investment gets exhausted steadily to zero over the life of the project.

It is assumed that the asset is depreciated as per straight line method. Usually it is expressed in terms of percentage. The *higher the ARR is, the better is the profitability* and hence the projects with higher accounting rate of return are short-listed for implementation.

The above formula can be changed as per the needs of the appraisal. Average profits can be considered before or after depreciation, interest or taxes. At times, ARR is determined considering the original cost of the project as the denominator.

### Example 6 Accounting rate of return

A firm is considering two projects each with an initial investment of Rs 20,000 and a life of 4 years. The following is the list of estimated cash inflows after taxes:

**Table 17.3 Estimated Cash Inflows Proposals for I, II & III**

Year	Proposal I	Proposal II	Proposal III
1	12,500	11,750	13,500
2	12,500	12,250	12,500
3	12,500	12,500	12,250
4	12,500	13,500	11,750
Total	50,000	50,000	50,000

Determine accounting rate of return on (a) average capital (b) original capital employed.

**(a) ARR on average capital**

$$ARR = \frac{\text{Average annual profits after taxes}}{\text{Average investment}}$$

$= \frac{12,500}{10,000}$	$= \frac{12,500}{10,000}$	$= \frac{12,500}{10,000}$
$= 125\%$	$= 125\%$	$= 125\%$

**(b) On original investment**

$$ARR = \frac{\text{Average annual profits after taxes}}{\text{Original investment}}$$

$= \frac{12,500}{20,000}$	$= \frac{12,500}{20,000}$	$= \frac{12,500}{20,000}$
$= 62.5\%$	$= 62.5\%$	$= 62.5\%$

From the Table 17.3, it is clear that the ARR gives equal priority to all the proposals though the timing of the cash inflows is different.

**If There is Working Capital and Scrap, How is ARR Computed?**

Where there is scrap resulting from the sale of the old asset and there is working capital, these two are added to the average investment. These are shown in the following formula:

$$\text{Average investment} = (\text{Cost} - \text{Scrap})/2 + \text{Scrap of old asset} + \text{Working capital}$$

**Example 7 Computation of ARR**

Find out the average rate of return from the following data relating to CNC Machines 1 and 2.

Cost	Rs 300,000 each
Estimated life	3 years each
Estimated scrap	60,000 each
Income tax rate	50%
Additional working capital required	2,50,000 for each machine

The estimated cash inflows after taxes for each machine are as given below:

Year	CNC Machine 1 Rs	CNC Machine 2 Rs
1	1,50,000	2,00,000
2	3,00,000	3,00,000
3	1,50,000	2,50,000
4	—	1,50,000
Total	<u>6,00,000</u>	<u>9,00,000</u>

### Solution

The average cash inflows after taxes for CNC Machine 1 = Rs 2,00,000 that is,  $(6,00,000/3)$

The average cash inflows after taxes for CNC Machine 2 = Rs 2,25,000 that is,  $(9,00,000/4)$

$$\begin{aligned}\text{Average Capital} &= \frac{(\text{Cost} - \text{Scrap})}{2} + \text{working capital} + \text{Scrap} \\ &= \frac{(3,00,000 - 60,000)}{2} + 2,50,000 + 60,000 \\ &= 1,20,000 + 250,000 + 60,000 \\ &= \text{Rs } 4,30,000\end{aligned}$$

$$\begin{aligned}\text{ARR for Machine 1} &= \frac{\text{Average annual profits after taxes}}{\text{Average investment}} \\ &= \frac{2,00,000}{4,30,000} = 46.5\% \quad \checkmark\end{aligned}$$

$$\text{ARR for Machine 2} = \frac{2,25,000}{4,30,000} = 52.32\%$$

$\frac{2,00,000}{4,30,000} = 46.5\%$

$\frac{2,25,000}{4,30,000} = 52.32\%$

Based on the accounting rate of return, the machine 2 is profitable.

### Advantages

1. It is easy to understand and calculate.
2. It can be compared with the cut off point of return and hence the decision to accept or reject is made easier.
3. It considers all the cash inflows during the life of the project, not like payback method.
4. It is a reliable measure because it considers net earnings that is, earnings after depreciation, interest and taxes.

### Disadvantages

1. The concept of time value of money is ignored.
2. Unless we have a cut-off point of return, accounting rate of return cannot be meaningful and effective.
3. The average concept is not reliable, particularly in times of high or wild fluctuations in the returns.
4. The average concept dilutes the profitability of the project. In other words, a project with greater aggregate returns is given lower ranking. For instance, take a project with a life of 3 years has an average annual cash inflows of Rs 20,000 (i.e. total cash inflows of Rs 60,000). If the same project has a life of one more year with a cash inflow of Rs 10,000, the average profitability gets reduced to Rs 17,500 ( $70,000/4$ ) and consequently the project ranked lower.

5. The method of computation of ARR is not standardised. There are many variations in the formula used. Cash inflows before or after depreciation, interest and taxes are used as per the needs of the analysis.

## DISCOUNTED CASH FLOW METHODS

Discounted cash flow methods are the improved methods over the traditional techniques. These consider the time value of money. They consider the whole earnings of the proposal and the cost of the project. Because of these reasons, these methods are also called modern methods of investment appraisal. Discounted cash flow methods can be (a) Internal Rate of Return (IRR) method (b) Net Present Value (NPV) method. Under both of these methods, the decision to choose or reject is based on their discounted cash flows.

### What are Discounted Cash Flows?

Discounted cash flows are the future cash inflows reduced to their present value based on a *discounting factor*. The process of reducing the future cash inflows to their present value based on a discounting factor or cut-off return is called *discounting*. Discounting is the obverse\* of compounding. To understand this, let us see the following example.

#### Example 8 Time Value of Money

Suppose your friend asks you to lend him Rs 1,000 today and offers to repay the same after one day or one year, do you lend him? What terms do you put forth?

*Solution:*

Naturally, you would like to have the money as quickly as possible. You may not ask any interest, if the money is repaid after one day. But if the money were to be repaid, after say one year, you would like to make it clear how much interest is to be paid along with the principal amount of Rs 1000. In case the friend does not agree, you may not lend him at all.

The above example shows that money earns interest at a given rate which is otherwise called *time value*. In other words, if you invest the same money in any bank, you will get interest, at a given rate, accrued on this Rs 1000. You don't want to be deprived of this interest. Yes, why should you? (If the friend is very close, that is different, you may not ask any interest at all.)

Using the above example, if it is invested with a bank or a building society at an interest rate of 10 percent per annum, it will increase as follows:

	Rs
Original investment	1,000
Interest at 10% on Rs1000 for the first year	100
Value at the end of first year	1,100
Interest at 10% on Rs 1100 for the second year	110
Value at the end of 2nd year	1,210

\* The basic formula for compounding is  $S = P(1 + r)^n$  where  $s$  is the sum arising in future,  $r$  is the rate of interest and

$n$  is the number of years. The same is taken as inverse in discounting as shown below Present Value:  $PV = \frac{S}{(1 + r)^n}$

In other words, a principal of Rs 1000 will multiply to Rs 1210 at the end of second year @ 10 percent per annum. The growth of Rs 210 is because of time value of money. The higher the rate of interest, the higher is the growth.

The same can be looked at from a different point of view. We are going to receive Rs 1,210 at the end of 2 years. What is its present value if it is growing at 10 percent per annum?

The answer is Rs 1000. The future value of Rs 1000 at the end of two years at a rate of return of 10 percent per annum is Rs 1210.

The present value of Rs 1210 received at the end of two years from now discounted at 10 percent per annum is Rs 1000.

**PV Factor** Present value factor is also called discounting factor. Present value factors are used to discount the future cash flows (both inflows and outflows) to their present value. The present value of Re 1 over a period of time for different discounting factors is given in Table 17.4. The present value of Re 1 received annually for N years (cumulative values) is given in column 3 of Table 17.5. To increase the present value of future cash inflows, reduce the PV factor and vice versa. In other words, if you increase the PV factor, the present value of future cash inflows gets reduced and vice versa.

The following table of factors outlines the present value for one year and also the cumulative value of present value of Re 1 received for N years for 10 percent interest:

Using your calculator, check that the table of factors above is correct. Multiply 1 with (100/110) for the first year, multiply the result by (100/110) for the second year and so on. This represents the present value of Re 1 invested at a given rate K. The cumulative value of present value of Re 1 received for N years so obtained can be verified from Table 17.5.

The present value is calculated as given below:

Here, we assume that all cash outflows are made in the initial year. K is the discount factor also called 'cost of capital'. Cash flows (CFs) in the year 1, 2 and 3 to n years are divided by the discount factor for K percentage in period 't' is:

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

$$PV = \left[ \frac{CF_1}{(1+K)} + \frac{CF_2}{(1+K)^2} + \frac{CF_3}{(1+K)^3} + \dots + \frac{CF_n}{(1+K)^n} \right]$$

$$C = \frac{CF_1}{(1+r)} + \frac{CF_2}{(1+r)^2} + \frac{CF_3}{(1+r)^3} + \dots + \frac{S_n + W_n}{(1+r)^n}$$

or

$$= \sum_{t=1}^n \frac{CF_t}{(1+r)^t} + \frac{S_n + W_n}{(1+r)^n}$$

or

$$\sum_{t=1}^n \frac{CF_t}{(1+r)^t} + \frac{S_n + W_n}{(1+r)^n} - C = 0$$

## **Internal Rate of Return (IRR) Method**

Internal rate of return is that rate of return at which the present value of expected cash flows of a project exactly equals the original investment. In other words, it equates the present value of a given project with its outlay. This is the cut-off point at which the income equals the expenditure or the investment breaks even.

At IRR, the net present value of a project is zero. The net present value refers to the excess of the present value of future cash flows over and above the original investment. IRR is denoted by ' $r$ '. It is computed as shown below:

$$C = \frac{CF_1}{(1+r)} + \frac{CF_2}{(1+r)^2} + \dots + \frac{CF_n}{(1+r)^n}$$

Where  $C$  is the capital outlay,  $r$  is the internal rate of return and  $CF_n$  is the cash inflow at different time periods.

If we have scrap value and working capital adjustments, the above formula will change to:

This shows that IRR is that rate at which the difference between the present value of cash inflows and the original cost is equal to zero.

### **Evaluation of IRR**

The internal rate of return is compared with the cost of the capital. If the IRR is more than the cost of capital, the project is profitable, otherwise it is not. Where there are two projects with different IRRs, select the project with higher IRR.

### **IRR and Even Cash Flows**

Where cash inflows are even, it is relatively easy to compute IRR based on a factor located from the cumulative present value of Re 1 (See Table 17.5). It is explained as given below:

#### **Example 9 Determination of IRR**

A project costs Rs 1,44,000. The average annual cash inflows are likely to be Rs 45,000 for a period of 5 years. Calculate the IRR for the project.

$$\text{Factor} = \frac{\text{Project cost}}{\text{Annual cash inflows}}$$
$$= \frac{1,44,000}{45,000}$$
$$= 3.2$$

From Table 17.5 the cumulative present value of Re 1 received annually for  $n$  years, find out between which rates of return, the factor 3.2 is lying. From the Table, it can be seen that 3.2 is lying between 3.274 and 3.127 the corresponding rates of return are 16 percent and 18 percent respectively. Since 3.2 is close to 16 percent, the IRR can be considered as close to 16 percent. However, the exact percentage can be determined by interpolation method\* as given below:

\* In the formula used for interpolation, the notation is like this:  $R_L$  is the lower rate of return,  $PV_{CFAT}$  is the present value of future cash flows after taxes,  $PV_C$  is the present value of original investment or capital,  $\Delta R$  is the difference in the rates and  $\Delta PV$  is the difference between the respective present values and IRR is the Internal Rate of a Return.

$$\begin{aligned}
 IRR(r) &= R_L + \left[ \frac{PV_{CFAT} - PV_C}{\Delta PV} \right] \times \Delta R \\
 &= 16 + \left[ \frac{1,47,330 - 1,44,000}{1,47,330 - 1,40,715} \right] \times 2 \\
 &= 16 + \left[ \frac{3,330}{6,615} \right] \times 2 \\
 &= 16 + (0.5) \times 2 \\
 &= 16 + 1.0 \\
 &= 17\%
 \end{aligned}$$

The IRR can be represented by graph also as shown below:

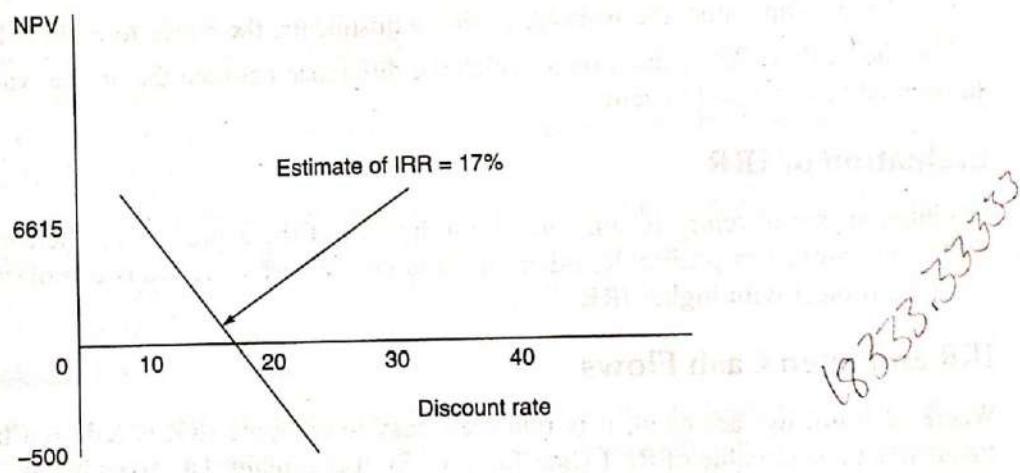


Fig. 17.1 Estimating IRR Graphically

### IRR and Uneven Cash Flows

In most of the cases where the cash flows are uneven, computation of IRR is more by trial and error with respect to the discount factor. If the discount factor does not help to arrive at present value of cash inflows closer to the capital outlay, try with another possible discount factor.

#### Example 10 IRR from uneven cash inflows

Given that a project yields the following cash inflows for six years at an original cost of Rs 50,000 determine IRR.

Year	Cash inflows after taxes (Rs)
1	0
2	10,000
3	16,000
4	24,000
5	30,000
6	30,000

### Solution

Here cash inflows are not even. So determine the IRR by trial and error process by attempting two possible different rates of interest 18 percent and say 20 percent.

Year	Cash inflow	18% PV factor	Present value of the future cash inflows	20% PV factor	Present value of the future cash inflows
1	0	0	0	0	0
2	10,000	0.718	7,180	0.694	6,940
3	16,000	0.609	9,744	0.579	9,264
4	24,000	0.516	12,384	0.482	11,568
5	30,000	0.437	13,110	0.402	12,060
6	30,000	0.370	11,100	0.335	10,050
			53,118		49,882
Less: Original investment			50,000		50,000
Difference (NPV)			3,118		-118

The original investment of Rs 50,000 lies in-between the present values Rs 53,118 and Rs 49,882 which means the IRR is in between 18 percent and 20 percent. The exact percentage can be worked by interpolation method. It can be concluded that the IRR is close to 20 percent. In other words, at IRR 20 percent, the present value of the future cash inflows and the original investment are equal. The higher the IRR, the better is the profitability.

The following is the estimation of IRR graphically:

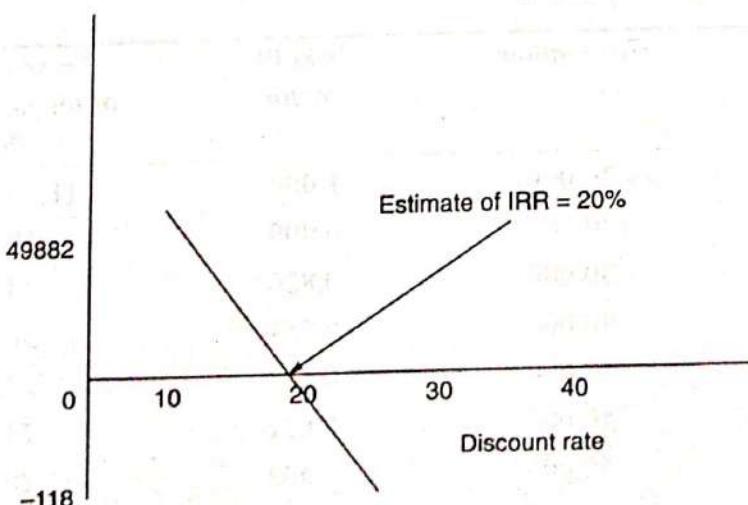


Fig. 17.2 Estimating an IRR Graphically

### Example 11 Computation of IRR

It is estimated that an investment in a new process will yield the following cash flow

							(in Rs)
Year beginning	0	1	2	3	4	5	6
Cash in flow			30,000	40,000	40,000	40,000	50,000
Cash outflow	1,20,000	20,000					

The firm wishes to earn at least 12 percent on this project. Determine IRR and suggest whether the project can be taken up or not.

#### Solution

Let us try with a PV factor say 6 percent. If the net present value is not close to zero, we will further increase the PV factor to, say, 8 percent and see the result.

Year	Cash inflow	6% PV factor	Present value of the future cash inflows	8% PV factor	Present value of the future cash inflows
0	(1,20,000)	1.000	(1,20,000)	1.000	(1,20,000)
1	(20,000)	0.943	(18,860)	0.926	(18,520)
2	30,000	0.890	26,700	0.857	25,710
3	40,000	0.839	33,560	0.794	31,760
4	40,000	0.792	31,680	0.735	29,400
5	40,000	0.747	29,880	0.681	27,240
6	50,000	0.705	35,250	0.630	31,500
Net present value (NPV)			18,210		7,090

NPV of 7090 is still positive value. To reduce this, we should further try to increase the percentage of PV factor. We will try 10 percent, this time.

Year	Cash inflow	10% PV factor	Present value of the future cash inflows
0	(1,20,000)	1.000	(1,20,000)
1	(20,000)	0.909	(18,180)
2	30,000	0.826	24,780
3	40,000	0.751	30,040
4	40,000	0.683	27,320
5	40,000	0.621	24,840
6	50,000	0.564	28,200
Net present value (NPV)			(3,000)

This shows that the IRR is inbetween 8 percent and 10 percent. Since this is lower than the desired IRR of 12 percent, the proposal cannot be recommended.

### **Advantages**

1. IRR is based on time value of money.
2. It is based on the earnings of all the years of the project.
3. It is a valuable tool to compare the projects with different cash inflows and different life span.
4. It is independent of cost of capital.
5. Such projects with higher IRR are recommended. Hence it directly contributes to the 'wealth maximisation goal' of the finance manager.

### **Disadvantages**

1. It is difficult to understand and tedious to calculate IRR by even trial and error.
2. It is based on certain assumptions, one of which is that the intermediate cash inflows are reinvested at IRR. Where the company has more than one project with different IRRs, this assumption may not hold good.
3. There could be cases of non-conventional projects with multiple IRRs, which are difficult to understand.
4. There are cases where higher IRR does not necessarily contribute to wealth maximisation (particularly in the case of mutually exclusive projects where NPV method is better).

### **Net Present Value Method**

Net present value refers to the *excess* of present value of future cash inflows over and above the cost of original investment.

$$NPV = (PV_{CFAT}) \text{ minus } (PV_c)$$

Where  $PV_{CFAT}$  refers to the present value of future cash inflows after taxes

$PV_c$  refers to present value of original investment or capital

The concept of NPV is a logical extension to the concept of present value. Here the decision is based on the size of net present value. The projects with higher NPVs are selected. If the NPV is negative, that means the project is not profitable. In other words, the NPV should always be positive and should be maximum. The present value factor tables are used here to determine the present value of the future cash inflows.

### **How is NPV Calculated?**

The following are the stages in the determination of NPV

1. From the PV factor table, identify the PV factors of Re 1 for the given discount rate (PV)
2. Multiply the cash flows (both outflows and inflows) with the corresponding PV factor to find the products  $DCF = (PV) \times (CFAT)$
3. Find the sum of the products
4. If the sum is positive, that means, the project is profitable. In case of projects with different NPVs, choose the project with the highest NPV because, the higher the NPV, the higher is the profitability.

## Interpretation

$NPV > 1$  which means that the project earns more than the discount rate

$NPV = 1$  which means that the project earns the same as the discount rate

$NPV < 1$  which means that the project earns less than the discount rate

### Example 12 NPV determination in case of even cash inflows

Given that a project costing Rs 40,000 has annual cash inflows of Rs 20,000 after taxes for a period of 6 years. How much is the net present value if the firm expects 15 percent per annum?

$$\text{Net present Value} = (PV_{CFAT}) \text{ minus } (PV_c)$$

PV (annuity) factor @ 15 percent for six years = 3.784

$$PV_{CFAT} = 20,000 \times 3.784$$

$$= \text{Rs } 75,680$$

$$NPV = 75,680 - 40,000$$

$$= \text{Rs } 35,680$$

### Example 13 NPV determination in case of uneven cash inflows

A firm has many projects. It wants to earn at least 6 percent per annum on this project with the following cash flows. Do you recommend?

Year end	0	1	2	3	4	5	6
Cash inflow			30,000	40,000	40,000	40,000	50,000
Cash outflow	1,00,000	20,000					

Solution

Year	Cash inflow	6% PV factor	Present value of the future cash flows
0	(1,00,000)	1.000	(1,00,000)
1	(20,000)	0.943	(18,860)
2	30,000	0.890	26,700
3	40,000	0.839	33,560
4	40,000	0.792	31,680
5	40,000	0.747	29,880
6	50,000	0.705	35,250
Total Present value			1,57,070
Less: Present value of original investment			1,18,860
Net present value (NPV)			38,210

Since NPV is positive, the project can be recommended.

### Example 14 NPV determination in projects with outflows during the project

From the following details relating to the two projects A and B, suggest which one is to be accepted under NPV method.

	<i>Project A (Rs)</i>	<i>Project B (Rs)</i>
Estimated cost	2,00,000	300,000
Estimated life (years)	5 years	6 years
Estimated scrap	50,000	60,000
Annual income after tax and Depreciation		
Year 1	1,00,000	1,20,000
2	1,00,000	90,000
3	80,000	90,000
4	60,000	65,000
5	50,000	50,000
6	nil	40,000

An uplink is required in the case of proposal A at the end of the 2nd year amount to Rs 25,000. Charge depreciation as per straight line method. The company expects a return of 10 percent.

**Step I:** Find out the present value cash outflows:

(in Rs)

<i>Particulars</i>	<i>Project A</i>	<i>Project B</i>
Estimated cost	2,00,000	3,00,000
Present value of Uplink charges paid at the end of Two years (PV factor @ 10 % for second year is Re. 0.826) from now	20,650	Nil
Total present value of cash outflows	2,20,650	3,00,000

**Step II:** Present value of Cash inflows for Project A

<i>Year</i>	<i>Annual income after tax and depreciation</i>	<i>Depreciation</i>	<i>Cash flows</i>	<i>PV factor @ 10%</i>	<i>Present value of future cash inflows</i>
<i>(a)</i>	<i>(b)</i>	<i>(c)</i>	<i>(d) = (b + c)</i>	<i>(e)</i>	<i>(f) = (d) x (e)</i>
1	1,00,000	30,000	1,30,000	0.909	1,18,170
2	1,00,000	30,000	1,30,000	0.826	1,07,380
3	80,000	30,000	1,10,000	0.751	82,610
4	60,000	30,000	90,000	0.683	61,470
5	50,000	30,000	80,000	0.621	49,680
Total present value of future cash inflows					4,19,310
Less: original cost of cash outflows					2,20,650
Add: PV of scrap receivable by the end of 5th year Rs. 50,000 @ 0.621					31050
Net present value					2,29,710

### Present value of Cash inflows for Project B

Year	Annual income after tax and depreciation	Depreciation	Cash flows	PV factor @ 10%	Present value of future cash inflows
(a)	(b)	(c)	(d) = (b + c)	(e)	(f) = (d) x (e)
1	1,20,000	40,000	1,60,000	0.909	1,45,440
2	90,000	40,000	1,30,000	0.826	1,07,380
3	90,000	40,000	1,30,000	0.751	97,630
4	65,000	40,000	1,05,000	0.683	71,715
5	50,000	40,000	90,000	0.621	55,890
6	40,000	40,000	80,000	0.564	45,120
Total present value of future cash inflows					5,32,175
<i>Add: PV of scrap 60,000 @ 0.621</i>					37,260
<i>Less: original cost of cash outflows</i>					3,00,000
					Net present value
					2,69,435

Since NPV for Project B is higher, select Project B.

#### Advantages

1. Since the PV factor tables are available, determination of NPV is relatively easier. It is easy to understand.
2. The goal of the financial management is wealth maximisation and this method enables the finance manager to pursue this goal.
3. It is based on the concept of time value and considers the total earnings and expenses of the project.
4. NPV is a superior technique to IRR in case of mutually exclusive proposals.
5. Each project can individually be evaluated.

#### Disadvantages

1. It is difficult to determine the appropriate discount rate.
2. The calculations are easier when compared to IRR, but is beyond the comprehension of a common businessman.
3. It does not indicate the cost of capital.
4. Where projects differ in their duration and their cash flows, this method cannot be used. (It is here, profitability index is used.)

### IRR AND NPV COMPARED

There is a fundamental difference in the assumptions made under IRR and NPV. In IRR we assume that the cash inflows during the life of the project are reinvested at the same IRR. Whereas in NPV, it is assumed that these are reinvested as per the opportunity available. However, IRR and NPV are closely related techniques. Both are based on the concept of time value. Both give the same results in case of independent projects.

The following are the cases where these two methods are likely to show divergent results:

- (a) where the projects differ in their outlay and resources
- (b) where the projects have different inflows, though the initial investment is the same
- (c) where the projects are mutually exclusive to each other with different project duration.

In some cases, computation of IRR is not possible. There could be cases of multiple IRRs in case of non-conventional cash flows (positive cash flows followed by negative cash flows again followed by positive cash flows and so on).

## PROFITABILITY INDEX

This is the ratio between the present value of cash inflows and the present value of cash outflows. It is used to indicate the profitability at a glance.

Where the projects differ in their duration and the cash flows, these can be compared based on their profitability index.

$$\text{Profitability Index} = \frac{\text{Sum of present value of cash inflows}}{\text{Sum of present value of cash outflows}}$$

### Interpretation

The profitability index is more than one for the profitable projects.

If the profitability index is less than one, reject the proposal.

If the profitability index is equal to one, the proposal is just break even.

If the profitability index is more than one, accept the proposal.

The higher the index, the more profitable the proposal is.

### Example 15 Profitability index

Calculate the profitability index for the project particulars given in Example 13

*Solution*

The sum of present values of cash inflows = Rs 1,57,070

The sum of present values of cash outflows = Rs 1,38,860

$$\begin{aligned}\text{Profitability Index} &= \frac{\text{Sum of present value of cash inflows}}{\text{Sum of present value of cash outflows}} \\ &= \frac{1,57,070}{1,18,860} \\ &= 1.32\end{aligned}$$

The profitability index of 1.32 shows that the proposal is profitable (as it is more than one) and can be accepted.

### Advantages

1. It is easy to calculate, given the present values of cash flows.

- Projects of different magnitude in terms of duration and cash flows can be short-listed on the basis of their profitability.
- It is recommended for use particularly when there is shortage of funds, because it correctly ranks the proposals.

## LIMITATIONS OF CAPITAL BUDGETING

- Uncertainty in the future** The capital budgeting proposals are infested with the uncertainty in the future. All data used in the evaluation of proposals is the estimates. The data is error-prone more with the human judgement, bias or discretion in the identification of cash inflows and outflows. Even advanced capital budgeting techniques such as sensitivity analysis\* cannot be useful if the data is erroneous.
- Qualitative factors ignored** In capital budgeting, we consider only such factors which can be quantified in terms of money. Factors such as improved morale of employees as a result of implementation of proposals are not focussed. The other factors in the business environment such as social, political, economic conditions and so on, are not reflected here.
- Volatile business conditions** The factors influencing investment decisions include (a) technological advancement, government policies (such as fiscal policy, monetary policy), sales forecast, attitudes of management (conservative or progressive), estimated cash flows, discount factor and rate of return. Any change in one or more of these factors is going to affect the capital budgeting decisions.
- Unrealistic assumptions** There are certain unrealistic assumptions underlying capital budgeting process. They are (a) There is no risk and uncertainty in the business environment. This is not correct. The future of the business is full of uncertainty and we apply the management techniques to minimise the risk. (b) The cash flows are received in lump sum at the end of the given period. (c) the key variables such as sales revenue, costs, price or investments and so on are taken based on past data. Particularly in times of rising prices, these seldom hold good for future. (d) The cost of capital and discount rate are one and the same.

### Example 16 Additional Illustration (covering all methods)

From the following particulars of three proposals each costing Rs 2,50,000 each, rank the proposals under each of the following methods:

- Pay back method
- Average rate of return method
- Internal rate of return method
- Net present value method
- Profitability index method.

It is further given that the tax rate is 50 percent; depreciation is calculated on straight line method; scrap value is zero; life time of each of the asset is three years and the company is particular about a yield of 12 percent per annum.

\* Sensitivity analysis is a practical way of showing the effects of uncertainty by changing the values of the key factors such as sales volume, market share, price, rates of inflation or cost per unit and so on and showing their effect on the viability of the proposal. The main object of the sensitivity analysis is to show which of these factors affect the viability of the proposal most.

**Present value interest factor of ₹ 1 per period at i% for n periods, PVIF(i,n).**

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621
6	0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239
16	0.853	0.728	0.623	0.534	0.458	0.394	0.339	0.292	0.252	0.218
17	0.844	0.714	0.605	0.513	0.436	0.371	0.317	0.270	0.231	0.198
18	0.836	0.700	0.587	0.494	0.416	0.350	0.296	0.250	0.212	0.180
19	0.828	0.686	0.570	0.475	0.396	0.331	0.277	0.232	0.194	0.164
20	0.820	0.673	0.554	0.456	0.377	0.312	0.258	0.215	0.178	0.149
25	0.780	0.610	0.478	0.375	0.295	0.233	0.184	0.146	0.116	0.092
30	0.742	0.552	0.412	0.308	0.231	0.174	0.131	0.099	0.075	0.057
35	0.706	0.500	0.355	0.253	0.181	0.130	0.094	0.068	0.049	0.036
40	0.672	0.453	0.307	0.208	0.142	0.097	0.067	0.046	0.032	0.022
50	0.608	0.372	0.228	0.141	0.087	0.054	0.034	0.021	0.013	0.009
Period	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	0.812	0.797	0.783	0.769	0.756	0.743	0.731	0.718	0.706	0.694
3	0.731	0.712	0.693	0.675	0.658	0.641	0.624	0.609	0.593	0.579
4	0.659	0.636	0.613	0.592	0.572	0.552	0.534	0.516	0.499	0.482
5	0.593	0.567	0.543	0.519	0.497	0.476	0.456	0.437	0.419	0.402
6	0.535	0.507	0.480	0.456	0.432	0.410	0.390	0.370	0.352	0.335
7	0.482	0.452	0.425	0.400	0.376	0.354	0.333	0.314	0.296	0.279
8	0.434	0.404	0.376	0.351	0.327	0.305	0.285	0.266	0.249	0.233
9	0.391	0.361	0.333	0.308	0.284	0.263	0.243	0.225	0.209	0.194
10	0.352	0.322	0.295	0.270	0.247	0.227	0.208	0.191	0.176	0.162
11	0.317	0.287	0.261	0.237	0.215	0.195	0.178	0.162	0.148	0.135
12	0.286	0.257	0.231	0.208	0.187	0.168	0.152	0.137	0.124	0.112
13	0.258	0.229	0.204	0.182	0.163	0.145	0.130	0.116	0.104	0.093
14	0.232	0.205	0.181	0.160	0.141	0.125	0.111	0.099	0.088	0.078
15	0.209	0.183	0.160	0.140	0.123	0.108	0.095	0.084	0.074	0.065
16	0.188	0.163	0.141	0.123	0.107	0.093	0.081	0.071	0.062	0.054
17	0.170	0.146	0.125	0.108	0.093	0.080	0.069	0.060	0.052	0.045
18	0.153	0.130	0.111	0.095	0.081	0.069	0.059	0.051	0.044	0.038
19	0.138	0.116	0.098	0.083	0.070	0.060	0.051	0.043	0.037	0.031
20	0.124	0.104	0.087	0.073	0.061	0.051	0.043	0.037	0.031	0.026
25	0.074	0.059	0.047	0.038	0.030	0.024	0.020	0.016	0.013	0.010
30	0.044	0.033	0.026	0.020	0.015	0.012	0.009	0.007	0.005	0.004
35	0.026	0.019	0.014	0.010	0.008	0.006	0.004	0.003	0.002	0.002
40	0.015	0.011	0.008	0.005	0.004	0.003	0.002	0.001	0.001	0.001
50	0.005	0.003	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000

**Present value interest factor of an (ordinary) annuity of Re 1 per period at i% for n periods, PVIFA(i,n).**

<b>Period</b>	<b>1%</b>	<b>2%</b>	<b>3%</b>	<b>4%</b>	<b>5%</b>	<b>6%</b>	<b>7%</b>	<b>8%</b>	<b>9%</b>	<b>10%</b>
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909
2	1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736
3	2.941	2.884	2.829	2.775	2.723	2.673	2.624	2.577	2.531	2.487
4	3.902	3.808	3.717	3.630	3.546	3.465	3.387	3.312	3.240	3.170
5	4.853	4.713	4.580	4.452	4.329	4.212	4.100	3.993	3.890	3.791
6	5.795	5.601	5.417	5.242	5.076	4.917	4.767	4.623	4.486	4.355
7	6.728	6.472	6.230	6.002	5.786	5.582	5.389	5.206	5.033	4.868
8	7.652	7.325	7.020	6.733	6.463	6.210	5.971	5.747	5.535	5.335
9	8.566	8.162	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759
10	9.471	8.983	8.530	8.111	7.722	7.360	7.024	6.710	6.418	6.145
11	10.368	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495
12	11.255	10.575	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814
13	12.134	11.348	10.635	9.986	9.394	8.853	8.358	7.904	7.487	7.103

14	13.004	12.106	11.296	10.563	9.899	9.295	8.745	8.244	7.786	7.367
15	13.865	12.849	11.938	11.118	10.380	9.712	9.108	8.559	8.061	7.606
16	14.718	13.578	12.561	11.652	10.838	10.106	9.447	8.851	8.313	7.824
17	15.562	14.292	13.166	12.166	11.274	10.477	9.763	9.122	8.544	8.022
18	16.398	14.992	13.754	12.659	11.690	10.828	10.059	9.372	8.756	8.201
19	17.226	15.678	14.324	13.134	12.085	11.158	10.336	9.604	8.950	8.365
20	18.046	16.351	14.877	13.590	12.462	11.470	10.594	9.818	9.129	8.514
25	22.023	19.523	17.413	15.622	14.094	12.783	11.654	10.675	9.823	9.077
30	25.808	22.396	19.600	17.292	15.372	13.765	12.409	11.258	10.274	9.427
35	29.409	24.999	21.487	18.665	16.374	14.498	12.948	11.655	10.567	9.644
40	32.835	27.355	23.115	19.793	17.159	15.046	13.332	11.925	10.757	9.779
50	39.196	31.424	25.730	21.482	18.256	15.762	13.801	12.233	10.962	9.915

<b>Period</b>	<b>11%</b>	<b>12%</b>	<b>13%</b>	<b>14%</b>	<b>15%</b>	<b>16%</b>	<b>17%</b>	<b>18%</b>	<b>19%</b>	<b>20%</b>
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	1.713	1.690	1.668	1.647	1.626	1.605	1.585	1.566	1.547	1.528
3	2.444	2.402	2.361	2.322	2.283	2.246	2.210	2.174	2.140	2.106
4	3.102	3.037	2.974	2.914	2.855	2.798	2.743	2.690	2.639	2.589
5	3.696	3.605	3.517	3.433	3.352	3.274	3.199	3.127	3.058	2.991
6	4.231	4.111	3.998	3.889	3.784	3.685	3.589	3.498	3.410	3.326
7	4.712	4.564	4.423	4.288	4.160	4.039	3.922	3.812	3.706	3.605
8	5.146	4.968	4.799	4.639	4.487	4.344	4.207	4.078	3.954	3.837
9	5.537	5.328	5.132	4.946	4.772	4.607	4.451	4.303	4.163	4.031
10	5.889	5.650	5.426	5.216	5.019	4.833	4.659	4.494	4.339	4.192
11	6.207	5.938	5.687	5.453	5.234	5.029	4.836	4.656	4.486	4.327
12	6.492	6.194	5.918	5.660	5.421	5.197	4.988	4.793	4.611	4.439
13	6.750	6.424	6.122	5.842	5.583	5.342	5.118	4.910	4.715	4.533
14	6.982	6.628	6.302	6.002	5.724	5.468	5.229	5.008	4.802	4.611
15	7.191	6.811	6.462	6.142	5.847	5.575	5.324	5.092	4.876	4.675
16	7.379	6.974	6.604	6.265	5.954	5.668	5.405	5.162	4.938	4.730
17	7.549	7.120	6.729	6.373	6.047	5.749	5.475	5.222	4.990	4.775
18	7.702	7.250	6.840	6.467	6.128	5.818	5.534	5.273	5.033	4.812
19	7.839	7.366	6.938	6.550	6.198	5.877	5.584	5.316	5.070	4.843
20	7.963	7.469	7.025	6.623	6.259	5.929	5.628	5.353	5.101	4.870
25	8.422	7.843	7.330	6.873	6.464	6.097	5.766	5.467	5.195	4.948
30	8.694	8.055	7.496	7.003	6.566	6.177	5.829	5.517	5.235	4.979
35	8.855	8.176	7.586	7.070	6.617	6.215	5.858	5.539	5.251	4.992
40	8.951	8.244	7.634	7.105	6.642	6.233	5.871	5.548	5.258	4.997
50	9.042	8.304	7.675	7.133	6.661	6.246	5.880	5.554	5.262	4.999

B.Tech II Year II Semester (R15) Supplementary Examinations December 2017

**MANAGERIAL ECONOMICS & FINANCIAL ANALYSIS**

(Common to CE, EEE and ME)

Time: 3 hours

Max. Marks: 70

**PART – A**

(Compulsory Question)

\*\*\*\*\*

1 Answer the following: (10 X 02 = 20 Marks)

- (a) Explain nature of managerial economics.
- (b) What are the limitations of break-even analysis?
- (c) What is a sole proprietorship?
- (d) What do you understand by globalization?
- (e) What do you understand by double entry system?
- (f) Why do we discount cash flows?
- (g) Why it is important to do a financial ratio analysis?
- (h) What is an iso-cost curve?
- (i) Why capital budgeting is significant for a firm?
- (j) What is the function of demand?

**PART – B**

(Answer all five units, 5 X 10 = 50 Marks)

**UNIT – I**

2 How managerial economics is related to financial accounting and management?

**OR**

3 What is demand forecasting? Explain in brief various methods of demand forecasting.

**UNIT – II**

4 Define Cobb-Douglas production function. Discuss the managerial uses of production function.

**OR**

5 From the following particulars, calculate:

- (i) Break-even point in terms of sales value and in units.
- (ii) Number of units that must be sold to earn a profit of Rs.90,000.

Fixed factory overheads cost Rs.60,000; Fixed selling overheads cost Rs.12,000; Selling price per unit Rs.24; Variable manufacturing cost per unit Rs.12; Variable selling cost per unit Rs.3.

**UNIT – III**

6 How oligopoly market is different from perfectly competitive and monopolistically competitive markets?

**OR**

7 Define public sector enterprise. Distinguish between private sector and public sector enterprises by giving any four points of distinction.

Contd. in page 2

**UNIT – IV**

- 8 Make a trial balance as on 31-12-2002 from the following information.  
 Sundry debtors Rs.32,000; Stock on 1-1-2002 Rs.22,000; Cash in hand Rs.35; Cash at bank Rs.1,545;  
 Plant and machinery Rs.17,500; Sundry creditors Rs.10,650; Trade expenses Rs.1,075; Sales  
 Rs.2,34,500; Salaries Rs.2,225; Carriage outwards Rs.400; Rent Rs.900; Bills payable Rs.7,500;  
 Purchases Rs.2,18,870; Discounts (Dr) Rs.1,100; Capital Rs.79,500; Business premises Rs.34,500.

**OR**

- 9 The working capital of ABC Ltd. has deteriorated in recent years and now stands as under.

<b>Current Assets</b>	<b>Rs.</b>	<b>Current Liabilities</b>	<b>Rs.</b>
Inventory	5,60,000	Creditors	4,90,000
Debtors	3,50,000	Bank loan	2,10,000
Cash	70,000		
	<u>9,80,000</u>		<u>7,00,000</u>

(i) Compute the current and quick ratios.

(ii) A further bank loan of Rs.50,000 against debtors is under negotiation. Assuming the loan is received; calculate the revised current and quick ratios.

**UNIT – V**

- 10 An initial investment of \$130,000 is expected to generate annual cash inflow of \$32,000 for 6 years. Depreciation is allowed on the straight line basis. It is estimated that the project will generate scrap value of \$10,500 at end of the 6<sup>th</sup> year. Calculate its accounting rate of return assuming that there are no other expenses on the project.

**OR**

- 11 "The return on investment is a single comprehensive measure that is influenced by everything happening within the organization". Explain the statement and illustrate its computation with imaginary figures.

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B.Tech II Year I Semester (R15) Supplementary Examinations June 2017  
**MANAGERIAL ECONOMICS & FINANCIAL ANALYSIS**  
 (Common to CSE, ME & IT)

Time: 3 hours

Max. Marks: 70

**PART - A**  
 (Compulsory Question)

\*\*\*\*\*

- 1 Answer the following: (10 X 02 = 20 Marks)
  - (a) Write the nature of managerial economics?
  - (b) Define elasticity of demand.
  - (c) Explain isocosts.
  - (d) Give the limitations of BEP.
  - (e) When do you call the competition as imperfect competition?
  - (f) List out advantages of privatization.
  - (g) Give the significance of ratio analysis.
  - (h) What are the advantages of financial accounting?
  - (i) What is source of capital?
  - (j) Give the features of capital budgeting.

**PART - B**  
 (Answer all five units, 5 X 10 = 50 Marks)

**UNIT - I**

- 2 Discuss the significance and characteristics of managerial economics.

**OR**

- 3 What is the purpose of forecasting? Discuss the factors involved in demand forecasting.

**UNIT - II**

- 4 Define production function. Explain the nature and managerial uses of production function.

**OR**

- 5 Explain the features, significance, benefits of break even analysis and its limitations.

**UNIT - III**

- 6 Discuss the meaning and main features of monopolistic market situation. Draw a diagram to show equilibrium of the firm with excess capacity.

**OR**

- 7 Discuss various techniques of price formulation in actual business situation.

**UNIT - IV**

- 8 Define financial accounting. Explain the need, significance and advantages of financial accounting.

**OR**

- 9 What is ratio? Explain various types of ratios used in financial analysis.

**UNIT - V**

- 10 Elucidate the nature of capital budgeting problem and what are the principle methods of ranking alternative investment proposals.

**OR**

- 11 Consider the projects and some relevant data.

Project	Annual cash flow	Original investment	Life in years	PV factor at 10%
A	12000	60000	15	7.7688
B	4500	20,500	10	6.3213

Rank this project following payback and NPV methods.

B.Tech II Year II Semester (R15) Regular Examinations May/June 2017

**MANAGERIAL ECONOMICS & FINANCIAL ANALYSIS**

(Common to CE, EEE and ME)

Time: 3 hours

Max. Marks: 70

**PART – A**

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

- (a) Describe scope of managerial economics.
- (b) When demand is elastic?
- (c) How do you find the breakeven point?
- (d) What is Iso-quant?
- (e) What do you mean by partnership firm?
- (f) What do you mean by globalization?
- (g) What is the difference between Bookkeeping and Accounting?
- (h) What are the liquidity ratios?
- (i) What do you mean by accounting rate of return?
- (j) Define Net present value.

**PART – B**

(Answer all five units, 5 X 10 = 50 Marks)

**UNIT – I**

2 Define managerial economics. Explain importance of managerial economics in making business decisions.

**OR**

3 What do you mean by demand forecasting? Explain the factors governing demand forecasting.

**UNIT – II**

4 What are the economies of scale? How economies of scale can be achieved?

**OR**

5 PNG electric company manufactures a number of electric products. Rechargeable light is one of the PNG's products that sells for \$180/unit. Total fixed expenses related to rechargeable electric light are \$270,000 per month and variable expenses involved in manufacturing this product are \$126 per unit. Monthly sales are 8,000 rechargeable lights.

Required:

1. Compute break-even point of the company in dollars and units.
2. Compute the number of rechargeable lights to be sold to earn a net operating income of \$189,000 per month (use original data).

**UNIT – III**

6 The government declared public enterprise as a model employ. Today they are evaluated like any other private organization. Do you think such a shift in the parameters of evaluation justified? What reasons do you think for such a shift?

**OR**

7 Can you explain why prices often show less variation under oligopoly than under other types of market structure?

Contd. in page 2



**UNIT – IV**

- 8 State the meaning of:  
(a) Outstanding expenses.  
(b) Prepaid expenses.  
(c) Income received in advance.  
(d) Accrued income.

**OR**

- 9 Given: Current ratio 2 : 5; Liquidity ratio 1 : 5; working capital Rs. 60,000. Calculate: (a) Current liabilities.  
(b) Current assets. (c) Liquid assets. (d) Stock.

**UNIT – V**

- 10 Mr. A is considering to invest in a poultry farm. The project will require an initial investment of \$250,000 and is expected to generate the following cash flows thereafter: First year \$-50,000; Second year \$50,000; Third year \$130,000; Fourth year \$110,000; Fifth year \$-100,000; Sixth year \$160,000; Seventh year \$200,000. Calculate the payback period and comment on your answer.

**OR**

- 11 A machine can reduce annual cost by \$40,000. The cost of the machine is \$223,000 and the useful life is 15 years with zero residual value.

Required: 1. Compute internal rate of return of the machine.  
2. Is it an acceptable investment if cost of capital is 16%?

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**B.Tech II Year I Semester (R15) Supplementary Examinations June 2018**
**MANAGERIAL ECONOMICS & FINANCIAL ANALYSIS**

(Common to CSE, ME &amp; IT)

Time: 3 hours

Max. Marks: 70

**PART – A**  
 (Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- Define price elasticity of demand.
  - Distinguish between autonomous demand and derived demand.
  - Distinguish between fixed cost and variable cost.
  - Define break-even point.
  - Explain state skimming pricing in brief.
  - Explain the features of monopoly.
  - What is working capital?
  - Explain equity share capital.
  - Discuss going concern concept in brief.
  - Give an account on trial balance.

**PART – B**

(Answer all five units, 5 X 10 = 50 Marks)

**UNIT – I**

- 2 Define managerial economics and explain its nature and scope.

**OR**

- 3 Define law of demand and explain exceptions to the law of demand.

**UNIT – II**

- 4 The sales turnover and profit during two years were as follows:

Year	Sales	Profit
2007	1,50,000	20,000
2008	1,70,000	25,000

**OR**

- 5 State the law of proportions. And explain with the help of graph.

**UNIT – III**

- 6 Discuss pricing objectives.

**OR**

- 7 Explain the advantages and disadvantages of sole trader form of organization.

**UNIT – IV**

- 8 Explain briefly capital budget techniques.

**OR**

- 9 A company is considering two mutually exclusive projects. The following information is available related to the two projects.

	Project A	Project B
Initial investment	Rs.5,00,000	Rs.5,00,000
CFAT at the end of year 1	50,000	3,00,000
2	1,00,000	2,50,000
3	2,00,000	2,00,000
4	2,50,000	1,00,000
5	3,00,000	50,000

If the firm's minimum expected rate of return is 10%, advise the company which project has to be accepted.

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Code: 15A52301

**UNIT – V****R15**

- 10 Journalize the following transactions:

2013

April, 1 Rajesh starts business with cash 20,000  
April, 2 He buys goods for cash 15,000  
April, 4 He buys goods from Malhotra on credit 6,000  
April, 5 Furniture is purchased for cash 1,000  
April, 9 Cash sales made 1,500  
April, 11 Goods sold on credit to Satya Dev 4,000  
April, 16 Payment made to Malhotra 6,000  
April, 19 Cash sales 4,300  
April, 21 Purchases of stationery for cash 20  
April, 25 Sales on credit to Yusuf 1,770  
April, 30 Rent for the month paid in cash 500.

**OR**

- 11 Calculate liquidity ratio from the following balance sheet a company compute current ratio and quick ratio, absolute quick ratio. Also interpret the ratios.

Land and buildings	50000
Plant and machinery	100000
Furniture and fixtures	25000
Closing stock	25000
Sundry debtors	12500
Wages prepaid	2500
Sundry creditors	8000
Rent outstanding	2000

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