

MP-103



Vardhaman Mahaveer Open University, Kota

Accounting for Managers

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PRODUCTION: March, 2011

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Printed and published on behalf of V.M. Open University, Kota by Registrar.

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INTRODUCTION

The purpose of this course is to develop an understanding for accounting knowledge so that decision maker can interpret the information in business terms. The course is divided into four blocks and 15 units in such a manner that the student can go ahead in a systematic and sequential manner. **Block - I : Introduction** deals with fundamental issues and concepts pertaining to Book-keeping, Accounting, Accounting Principles, Standards and Conventions, Double Entry System, Journal and Ledger entries, Trial Balance and Final Accounts. **Block - II : Cost Accounting** explains the concept of cost accounting and marginal costing which are essential components of cost management. **Block III : Management Accounting** explains the role and functions of management accounting as a tool of decision making. It is followed by standard costing and variance analysis. **Block IV : Financial Analysis** is devoted to the tools of Financial Analysis such as Ratio Analysis and Funds Flow and Cash Flow Statements. The Units in this Block will help to understand the financial health of a firm.



MP-103

Vardhaman Mahaveer Open University, Kota

Accounting for Managers

Unit -1 Accounting Concepts

Unit Structure

- 1.0 Objectives
- 1.1 Introduction
- 1.2 Need of Accounting
- 1.3 Development of Accounting
- 1.4 Definitions and Functions of Accounting
- 1.5 Objectives of Accounting
- 1.6 Accounting as Science or Art
- 1.7 Book-keeping, Accounting and Accountancy
- 1.8 Branches of Accounting
- 1.9 End users of Accounting Information
- 1.10 Limitations of Accounting
- 1.11 Summary
- 1.12 Key Words
- 1.13 Self Assessment Test
- 1.14 Reference Books

1.0 Objectives

After studying this unit you should be able to understand:

- Objective and Need for accounting
- Definition of accounting
- Book-keeping
- Types of accounting
- Accounting as source of accounting to various users
- Limitations of accounting

1.1 Introduction

A business enterprise engages itself in a number of activities, primarily in terms of money, with a view to making profit and keeping it as a going concern for an indefinite period of time. A business enterprise of even medium size deals with many customers, many employees and many suppliers and deals in many business transactions. It is impossible to operate even a medium sized business just by remembering the details of business transactions occurring therein. That is why there is a saying “First record and then pay. If errors, look what books say”.

A systematic and upto date record of varied and numerous business transactions, is therefore quite essential to obtain the required information in respect of profit and loss, assets and liabilities and capital of business and also to exercise control over various items of expenditure. Accounting plays a key role in serving this purpose.

1.2 Need of Accounting

Accounting has rightly been termed as the language of business. The basic function of a language is to serve as a means of communication. Accounting also serves this function. It communicates the results of business operation to various parties who have some stake in the business viz the proprietor, creditor, investors, government and other agencies. Though accounting is generally associated with business yet it is not only business which make use of accounting. Persons like housewives, government and other individuals also make use of accounting. For example, in case the housewife records her transactions regularly, she can collect valuable information about the nature of her receipts and payments. For example she can find out the total amount spent by her during a period on different items say milk, food, education, entertainment etc. Similarly she can find the source of her receipt as salary, rent from property, cash gifts from her relatives thus at the end of the period she can see for herself about her financial position i.e. what she owes and what she owns. This will help her in planning her future income and expenses (or making out a budget) to a great extent.

The need for accounting is all the more greater for a person who is running a business. He must know: - (i) what he owns (ii) who he owes (iii) whether he has earned a profit or suffered a loss on account of running a business (iv) what is his financial position i.e. whether he will be in a position to meet all his commitments in the near future or he is in the process of becoming a bankrupt.

1.3 Development of Accounting

Accounting is as old as money itself. In India, Chanakya in his Arthashastra has emphasized the existence and need of proper accounting and auditing. However, the modern system of accounting owes its origin to Pacoili who lived in Italy in the 18th century. In those early days the business organizations and transactions were not so complex due to their being small and easily manageable by the proprietor itself. Things have changed fast during the past 50 years. The evident of industrial revolution has resulted in large scale production, cut throat competition and widening of the market. In the early stages accounting developed as a result of the needs of the business firms to keep track of their relationship with outsiders, listing of their assets and liabilities. In recent years changes in technology have also brought a remarkable change in the field of accountancy. The whole concept of accounting has changed. "it has come to be recognized as a tool for mastering the various economic problems with the business organization may have to face..it systematically writes the economic history of the organization. It provides information that can be drawn upon by those responsible for decision affecting the organization's future. Its history is mostly written in quantitative terms. It consists partly of files of data, partly of reports summarizing various portions of these data, and partly of the plans established by the management to guide its operations".

1.4 Definitions and Functions of Accounting

In 1941, the American Institute of Certified Public Accountants (AICPA) defined accounting as follows "Accounting is the art of recording, classifying and summarizing in significant manner and in terms of money, transactions and events which are, in part, at least a financial character and interpreting the results there of".

In 1966, the American accounting association (AAA) defined accounting as follows:

- "Accounting is the process of identifying, measuring and communicating economic information to permit informed judgments and decisions by the users of the information".
- In 1970, the Accounting Principle Board (APB) of American Institute of Certified Public

Accountants enumerated the functions of accounting as follows:

- “The function of accounting is to provide quantitative information, primarily of financial nature, about economic entities, that is needed to be useful in making economic decisions”.
- Thus accounting may be defined as the process of recording, classifying, summarizing, analyzing and interpreting the financial transactions and communicating the result thereof to the persons interested in such information.

The analysis of the definition brings out the following **functions of accounting**:

1. **Recording:** This is basic function of accounting. It is essentially concerned with not only ensuring that all business transactions of financial character are in fact recorded but also that they are recorded in an orderly manner. Recording is done in the book of 'Journal'. This book may be further sub divided into various subsidiary books such as cash journal (for recording cash transactions), purchases journal(for recording credit purchase of goods) sales journal (for recording credit sales of goods), etc...the number of subsidiary books to be maintained will be according to the nature and size of the business.
2. **Classifying:** It is concerned with the systematic analysis of the recorded data, with a view to keeping group transactions or entries of one nature at one place. The work of classification is done in the book termed as 'ledger'. This book contains different pages of different accounts heads under which all financial transactions of similar nature are collected. For example there may be separate account heads for travelling expenses, printing and stationary, advertising etc.
3. **Summarizing:** This involves presenting the classified data in a manner which is understandable and useful to the internal as well as external end users of accounting statements. The process leads to the preparation of the following statements: (i) Trial balance, (ii) Income statement, and (iii) Balance sheet.
4. **Dealing with financial transactions:** Accounting records only those transactions and events in terms of money which are of financial character. For example, if a company has got a team of dedicated and trusted employees, it is of great use to the business but since it is not of a financial character and capable of being expressed in terms of money, it will not be recorded in the books of business.
5. **Analyzing and interpreting:** This is the final function of accounting. The recorded financial data is analyzed and interpreted in a manner that the end users can make a meaningful judgment about the financial conditions and profitability of the business operations. The data is also used for preparing the future plan and framing of policies for executing such plans.
6. **Communicating:** The accounting information after being meaningfully analyzed and interpreted has to be communicated in a proper form and manner to the proper person. This is done through preparation and distribution of accounting reports, which includes, besides the usual income statement and the balance sheet, additional information in the form of accounting ratios, graphs, diagrams, fund flow statement etc...

1.5 Objectives of Accounting

The following are the main objectives of accounting:

1. **To keep systematic records.** Accounting is done to keep a systematic record of financial transactions. In the absence of accounting there would have been terrific burden on human memory which in most cases would have been impossible to bear.

2. **To protect business properties.** Accounting provides protection to business properties from unjustified and unwarranted use. This is possible on account of accounting by supplying the following information to the managers or the proprietors:

- (i) The amount of the proprietor's fund invested in the business
- (ii) How much the business has to pay to the others.
- (iii) How much the business has to recover from the others.
- (iv) How much the business has in the form of (a) fixed assets; (b) cash in hand; (c) cash at bank; (d) stock of raw materials, work in progress and finished goods.

Information about the above matters helps the proprietor in assuring that the funds of the business are not unnecessarily kept idle or under-utilized.

3. **To ascertain the operational profit or loss.** Accounting helps in ascertaining the net profit earned or loss suffered on account of carrying the business. This is done by keeping a proper record of revenues and expenses of a particular period. The profit and loss account is prepared at the end of a period and if the amount of revenue for the period is more than the expenditure incurred in earning that revenue there is said to be a loss.

Profit and loss account will help the management, investors, creditors etc. in knowing whether running the business has proved to be remunerative or not. In case it has not proved to be remunerative or profitable, the cause of such a state of affairs will be investigated and necessary remedial steps will be taken.

4. To ascertain the financial position of business. The profit and loss account gives the amount of profit and loss made by the business during a particular period. However, it is not enough. The businessman must know his financial position i.e. where he stands, what he owes and what he owns. This objective is served by Balance Sheet or Position Statement. The Balance Sheet is a statement of assets and liabilities of the business on a particular date. It serves as barometer for ascertaining the financial health of the business.
5. To facilitate rational decision making. Accounting these days has taken upon itself the task of collection, analysis and reporting of information at the required points of time to the required levels of authority in order to facilitate rational decision making. The American Accounting Association has also stressed this point while defining the term 'accounting' when it says that accounting is “the process of identifying, measuring and communicating economic information to permit informed judgments and decisions by users of the information.” Of course, this is by no means an easy task. However the accounting bodies all over the world and particularly the International Accounting Standards Committee have been trying to grapple with this problem and have achieved success in laying down some basic postulates on the basis of which the accounting statements have to be prepared.

1.6 Accounting as Science or Art

Any organized knowledge based on certain principles is a 'science'. Accounting is also a science. It is an organized knowledge based on scientific principles which have been developed as a result of study and experience. Of course accounting cannot be termed as a perfect science like physics or chemistry where experiments can be carried and perfect conclusions can be drawn. It is a social science depending much on human behavior and other social and economic factors.

Art is the technique which helps us in achieving our desired objective. Accounting is definitely an art.

The American Institute of Certified Public Accountants also defines accounting as "the art of recording, classifying and summarizing the financial transactions". Accounting helps in achieving the desired objectives of maintaining proper accounts i.e. . . . to know the profitability and the financial position of the business by maintaining proper accounts.

1.7 Book-keeping, Accounting and Accountancy

These three are sometimes considered as synonyms. However, there is fundamental difference amongst bookkeeping and accounting and accountancy.

1.7.1 Bookkeeping

Bookkeeping is mainly concerned with record keeping or maintenance of books of accounts. The maintenance of books of accounts include the following four activities

- I. Identifying the transactions of financial nature from amongst the various transactions.
- II. Measuring the identified transactions in terms of money.
- III. Recording the identified transactions in the books of original entry.
- IV. Classifying them into ledger.

The bookkeeping function is routine and clerical in nature and can be performed by persons having limited knowledge of accounting. At present this function is increasingly done by computers.

1.7.2 Accounting

Accounting starts where book keeping ends. It includes the following activities:

- I. Summarizing the classified data in the form of profit and loss account and balance sheet etc.
- II. Analyzing and interpreting the summarized results. In other words, drawing the meaningful information from profit and loss account and balance sheet.
- III. Communicating the information to the interested parties.

Thus the accountant's work goes beyond the work of a book keeper.

1.7.3 Accountancy

Accountancy refers to a systematic knowledge of accounting concerned with the principles and techniques which are applied in accounting. It tells us how to prepare books of accounts, how to summarize the accounting information and how to communicate it to the interested parties. According to Kohler, 'accountancy refers to the entire body of theory and practice of accounting.'

1.8 Branches of Accounting

In order to satisfy needs of different people interested in the accounting information, different branches of accounting have developed. They can be broadly classified into three categories

- i. Financial accounting:** It is the original form of accounting. It is mainly confined to the preparation of financial statements for the use of outsiders like shareholders, debentureholders, debtors, creditors, bank and financial institutions. The financial statements i.e. the profit and loss account and the balance sheet, show the manner in which the business operations of the business have been conducted during the specified period.
- ii. Management Accounting:** It is accounting for the management i.e. accounting which provides necessary information to the management for discharging its functions. According to Chartered

Institute of Management Accountants, London, "Management accounting is the formation of policies and in planning and control of the operations of the undertaking." It covers all the arrangements and combinations or adjustments of orthodox information to provide the chief executive with the information from which he can control the business.

- iii. **Cost accounting:** The main purpose of cost accounting is to ascertain total cost and per unit cost of goods produced and services rendered by a business. It also estimates the cost in advance and helps the management in exercising strict control over cost.

1.9 End Users of Accounting Information

Accounting information is used by various groups of people who have contact with business enterprise. They use accounting information in order to satisfy some of their varied needs for information. The various users are as follows:

- I. **Proprietors:** A business is done with the objective of making profit. Its profitability and financial soundness are, therefore, matters of prime importance to the proprietors who have invested their money into the business
- II. **Managers:** Managers need financial information to run the business entity in an efficient manner and take effective decisions on behalf the owners of the business.
- III. **Creditors:** Creditors are the persons who have extended credit to the company. They are also interested in the financial statements because they will help them in ascertaining whether the enterprise will be in a position to meet its commitment towards them both regarding payment of interest and the principal.
- IV. **Prospective investors:** A person who is contemplating an investment in a business will like to know about its profitability and financial position. A study of the financial statement will help him in this respect.
- V. **Government:** The government is interested in the financial statement of business enterprise on account of taxation, labor and corporate laws, if necessary; government can ask its officials to examine the accounting records of the business.
- VI. **Employees:** The employees are interested in the financial statements on account of various profit sharing and bonus schemes. Their interest may further increase in case they purchase shares of the companies in which they are employed.
- VII. **Citizens:** An ordinary citizen may be interested in the accounting records of the institutions with which he comes in contact in daily life example bank, temple, and public utilities such as gas, transport and electricity companies. In a broader sense, he is also interested in the accounts of the government company, a public utility company etc...As a voter and a tax payer.
- VIII. **Researcher:** Accounting information being a mirror of financial performance of the business enterprise, is of immense value to the research scholars who want to make an in depth study of the financial operations of the enterprise.

1.10 Limitations of Accounting

As discussed above, accounting provides information about the profitability and financial soundness of the concern to the owners and the interested parties. In addition, it provides various other valuable information also. However accounting has certain limitations which must be kept in mind while using such informations. These limitations are as follows:

- (1) **Based on accounting concepts and conventions:** Accounts are prepared on the basis of number of accounting concepts and conventions. Hence, the profitability and the financial position disclosed by it may not be realistic. For example, fixed assets are shown in the business as per going concern concept. This means that fixed assets are shown at their cost and not at their market price. The value realized on their sales may be more or less than the value stated in the balance sheet. Similarly, on account of convention of conservatism, the profit and loss account does not disclose the true profit of the business because future losses are provided for whereas future profits are ignored.
- (2) **Influenced by personal judgment:** Accounting is not an exact science and accountant has to exercise his personal judgment in respect of various items. For example, it is extremely difficult to predict with any degree of accuracy the actual useful life of an asset which is needed for calculating depreciation. Different persons are bound to have different opinions in respect of such things and hence it will result in ascertainment of different figures of profit and loss of a business by different persons. Hence the figures of profit cannot be taken as exact figures.
- (3) **Incomplete information:** Accounting statements provide only the incomplete information because the actual profit or loss of a business can be known only when the business is closed down.
- (4) **Omission of qualitative information:** Accounts contain information which can be expressed in terms of money. Qualitative aspects of the business unit are completely omitted from the books as these cannot be expressed in monetary terms. Thus changes in management, reputation of the business, cordial relations between management and labor, firm's ability to develop new product, efficiency of management, satisfaction of firm's customers etc. which have the vital bearing on the firm's profitability are all ignored and omitted from being recorded because all of these events are qualitative in nature.
- (5) **Based on historical cost :** Accounts are prepared on the basis of historical cost (i.e. the original cost) and as such the figures given in financial statements do not show the effect of changes in price level. The assets remain undervalued in many cases particularly land and building. The outcome of this practice is that balance sheet values of the assets are not helpful in estimating the true financial position of the business.
- (6) **Affected by window dressing :** The accounts are manipulated, so that the financial statements may disclose a more favorable position than the actual position. For example, the purchase made at the end of the year may not be recorded or the closing stock may be over valued. Hence correct decision cannot be taken on the basis of such financial statements.
- (7) **Unsuitable for forecasting :** Financial accounts are only a record of past events. Continuous changes take place in the demand of the product, policies adopted by the firm, the position of the competitors etc. as such; the financial analysis based on the past events may not be of much use for forecasting.

1.11 Summary

Accounting is the art of recording, classifying and summarizing in significant manner and in terms of money, transactions and events which are in part, at least of financial nature and interpreting the results thereof.

1.12 Key Words

- **Accounting:** the process of identifying, measuring and communicating economic information to permit informed judgments and decision by the users of information.
- **Management accounting:** the presenting of accounting information in such a way as to assist management in the creation of the policy and in the day to day operation of the undertaking.
- **Assets:** anything which is in possession or is the property of a business enterprise including the amount due to it from others.
- **Debtors:** those persons or firms to whom goods have been sold or services rendered on credit and payment has not been received from them. They still owe some amount to the business.

1.13 Self Assessment Test

- (1) “Only financial transactions are recorded in accountancy”. Explain the statement.
- (2) Define accounting. State its functions.
- (3) How is accounting different from book keeping?
- (4) What are the limitations of accounting?
- (5) What are the types of accounting?
- (6) Which are the parties interested in the accounting information and why?

1.14 Reference Books

Monga J.R., *Foundation Accountancy*.

Grewal T.S. , *Double Entry Book-keeping*.

Jain, Khandelwal, Pareek, *Foundation of Accounting*.

Unit - 2 Accounting Principles, Standards and Conventions

Unit Structure

- 2.0 Objectives
- 2.1 Introduction
- 2.2 Meaning of Accounting Principles
- 2.3 Accounting Concepts or Assumptions
- 2.4 Accounting Conventions
- 2.5 Generally Accepted Accounting Principles (GAAP)
- 2.6 Systems of Accounting
- 2.7 Summary
- 2.8 Key Words
- 2.9 Self Assessment Test
- 2.10 References Books

2.0 Objectives

After studying this unit you should be able to understand :

- Generally Accepted Accounting Principles(GAAP)
- Accounting Concepts or Assumptions:
 - Business entity concept
 - Money measurement concept
 - Going concern concept
 - Accounting period concept
 - Cost concept
 - Dual aspect concept
 - Revenue recognition(realization) concept
 - Matching concept
- Accounting Conventions:
 - Convention of full disclosure
 - Convention of consistency
 - Convention of conservatism(prudence)
 - Convention of materiality
- Different Systems of Accounting

2.1 Introduction

The accounting profession has developed over the years, from experience, usage and necessity a number of rules or guidelines called concepts, conventions, assumptions, principles etc; with the objective of achieving consistency and comparability between the financial information. These financial information may be of different enterprises for a given accounting period or of a particular business enterprises for a number of years.

Accounting principles are judged on their general acceptability rather than universal acceptability to the makers and user of financial statement, so they are known as Generally Accepted Accounting Principles (GAAP). The GAAP is used to describe the concepts, conventions, rules etc. The general acceptance of accounting principles depends on how well they satisfy relevance, objectivity and feasibility

2.2 Meaning of Accounting Principles

Unlike in the past when accounting statements were largely needed by the owners, these days accounting statements are needed by various parties who have vested interest in the business, namely, investors, creditors, government, banks and many others. Accounting statements disclose the profitability and solvency of the business to various parties. It is, therefore, necessary that such statements should be prepared according to some standard language and set of rules. These rules are usually called 'generally accepted accounting principles'. These principles are generally accepted by accountants all over the world as general guidelines for preparing the accounting statements. These rules (usually called GAAP) bring uniformity and consistency to the process of accounting and enhance its utility to different users of accounting information.

Accounting principles are described by various terms such as assumptions, conventions, concepts, doctrines, postulates etc. These principles can be classified mainly into two categories:

1. Accounting Concepts or Assumptions
2. Accounting Conventions

2.3 Accounting Concepts or Assumptions

The term concepts includes those basic assumptions or conditions upon which accounting is based. The following are the important accounting concepts:

- I. Business Entity Concept :** In accounting, business is treated as separate entity from its owners. Accounts are prepared to give information about the business and not about those who own it. A distinction is made between business transactions and personal transactions. Without such a distinction, the affairs of the business will be mixed up with the private affairs of the proprietor and the true picture of the firm will not be available. The 'business' and 'owner' are taken as two separate entities. The accountant is interested to record transactions relating to business only. The private transactions of the owner will be recorded separately and will have no bearing on the business transactions. All the transactions of the business are recorded in the books of the business from the point of view of the business as an entity and even the proprietor is treated as a creditor to the extent of his capital. The concept of separate entity is applicable to all of business organizations. For example, in case of a sole proprietorship business or partnership business, though the sole proprietor or partners are not considered as separate entities in the eyes of law, yet for accounting purposes they will be considered as separate entities. In the case of Joint Stock Company, the business has a separate legal entity than the shareholders. The coming and going shareholders do not affect the entity of the business. Thus, the distinction between owner and the business unit has helped accounting in reporting profitability more objectively and fairly. It has also led to the development of 'responsibility accounting' which enables us to find out the profitability of even the different sub-units of the main business.
- II. Going Concern Concept:** According to going concern concept it is assumed that the business will

exist for a long time to come. Transactions are recorded in the books keeping in view the going concern aspect of the business unit. A firm is said to be going concern when there is neither the intention nor necessary to wind up its affairs. In other words, it should continue to operate at its present scale in the future. On account of this concept the fixed assets are shown in the balance sheet at a diminishing balance method i.e., going concern value. There is no need to show assets at market value because these have been purchased for use in future and earn revenues and for sale purpose. If the business is not to continue then market value will have significance. Since business is to continue, fixed assets will be shown at cost less depreciation basis. It is due to the concept that the fixed assets are depreciated on the basis of their expected life than on the basis of market value. The concept also necessitates distinction between expenditure that will render benefit over a long period and that whose benefit will be exhausted quickly, say within one year. The going concern concept also implies that existing liabilities will be paid at maturity.

- III. Money Measurement Concept:** Accounting records only those transactions which can be expressed in terms of money. Transactions or events which cannot be expressed in money do not find place in the books of accounts though they may be very useful for the business. For example, if a business has got a team of dedicated and trusted employees, it is definitely an asset to the business, but since their monetary measurement is not possible, they are not shown in the books of business. It should be remembered that money enables various things of diverse nature to be added up together and dealt with. The use of a building and the use of clerical service can be aggregated only through money values and not otherwise.
- IV. Cost Concept:** This concept is closely related to the going concern concept. According to this concept, an asset is ordinarily recorded in the books at the price at which it was acquired i.e., at its cost price. This cost serves the basis for the accounting of this asset during the subsequent period. The 'cost' should not be confused with 'value'. It must be remembered that as the real worth of the assets changes from time to time, it does not mean that the value of such an asset is wrongly recorded in the books. The book values of the assets as recorded do not reflect their real value. They do not signify that values noted therein are the values for which they can be sold. Though the assets are recorded in the books at cost, in course of time, they are reduced in value on account of depreciation charges. The idea that the transactions should be recorded at cost rather than at a subjective or arbitrary value is known as cost concept. With the passage of time, the market value of fixed assets like land and buildings vary greatly from their cost. These changes in the value are generally ignored by the accountants and they continue to value them in the balance sheet at historical cost. The principle of valuing the fixed assets at cost and not at market value is the underlying principle in cost concept. According to them the current values alone will fairly represent the cost to the entity. The cost principle is based on the principle of objectivity. There is no room for personal assessment in showing the figures in accounting records. If subjectivity is flowed in records the same assets will be valued at different figures by different individuals. Every body will have his own views about various assets. The cost concept is helpful in making truthful records. The records become more reliable and comparable.
- V. Dual Aspect Concept:** This is the basic concept of accounting. Modern accounting system is based on dual aspect concept. Dual concept may be stated as "for every debit, there is a credit". Every transaction should have two sided effect to the extent of the same amount. For example, if A starts a business with a capital of Rs.10,000. There are two aspects of the transaction. On the one hand the business has assets of Rs10, 000 while on the other hand the business has to pay to the

proprietor a sum of Rs 10,000 which is taken as proprietor's capital. This expression can be shown in the form of following equation:

$$\text{Capital (Equities)} = \text{Cost (Assets)}$$

$$10,000 = 10,000$$

The term 'assets' denotes the resources owned by a business while the term 'equities' denotes the claims of various parties against the assets. Equities are of two types. They are owner's equity and outsider's equity. Owner's equity (or capital) is the claim of the owner's against the assets of the business while outsiders' equity (liabilities) is the claim of outside parties against the assets of the business. Since all assets of the business are claimed by someone (either owners or outsiders), the total of assets will be equal to total of liabilities. Thus:

$$\text{Equities} = \text{Assets}$$

$$\text{Liabilities} + \text{Capital} = \text{Assets}$$

Suppose business borrows Rs 5000 from a bank, dual aspect of this transaction will be

$$\text{Capital} + \text{Liabilities} = \text{Assets}$$

$$+ \text{A Loan}$$

$$10,000 + 5000 = 15,000$$

Thus the accounting Equation states that at any point of time the assets of any entity must be equal (in monetary terms) to the total of owner's equity and outsider's liabilities. As a matter of fact the entire system of double entry accounting is based on this concept.

VI. Accounting period concept : According to this concept, the life of the business is divided into appropriate segments for studying the results shown by the business after each segment. Since the life of the business is considered to be indefinite (according to going concern concept) the measurement of income and studying financial position of the business according to the above concept, after a very long period would not be helpful in taking proper corrective steps at the appropriate time. It is, therefore, absolutely necessary that after each segment or time interval the businessman must stop and see, how things are going on. In accounting such a segment or time interval is called accounting period. It is usually of a year. At the end of each accounting period and income statement/profit & loss account and a Balance Sheet are prepared. The income statement discloses the profit or loss made by the business during the accounting period while Balance Sheet discloses the financial position of the business as on the last day of the accounting period. While preparing these statements a proper distinction has to be made between capital and revenue expenditure.

VII. Matching concept : The aim of business is to earn profit. In order to ascertain the profit the costs (expenses) are matched to revenue. The difference between income from sales and costs of producing the goods will be the profit. When business is taken as a going concern then it becomes necessary to evaluate the performance periodically. A correct statement of income requires a distinction between past, present and future expenditures. A distinction between capital and revenue expenditure is also necessary. The revenues and costs of the same period are matched. In other words, income made by the business during a period can be measured only when the revenue earned during a period is compared with the expenditure incurred for earning that revenue. The question when the payment was received or made is irrelevant.

VIII. Realization Concept: This concept emphasizes that profit should be considered only when realized. The question is at what stage profit should be deemed to have accrued? Whether at the time of receiving the order or at the time of execution of the order or at the time of receiving the cash? For answering this question the accounting is in conformity with the law and recognizes the principle of law i.e., the revenue is earned only when the goods are transferred. It means that profit is deemed to have accrued when property or goods passes to the buyer, viz., when sales are made.

2.4 Accounting Conventions

The term “conventions” includes those customs or traditions which guide the accountants while preparing the accounting statements. The following are the important accounting conventions.

- I. Convention of Disclosure:** The disclosure of all significant information is one of the important accounting conventions. It implies that accounts should be prepared in such a way that all material information is clearly disclosed to the reader. The term disclosure does not imply that all information that any one could desire is to be included in accounting statements. The term only implies that there is a sufficient disclosure of information which is of material in trust to proprietors, present and potential creditors and investors. The idea behind this convention is that any body who wants to study the financial statements should not be misled. He should be able to make a free judgment. The disclosures can be in the way of foot notes, within the body of financial statements, in the minutes of meeting of directors etc.
- II. Convention of Materiality:** It refers to the relative importance of an item. According to this convention only those events or items should be recorded which have a significant bearing and insignificant things should be ignored otherwise accounting will be unnecessarily over burden with minute details. There is no formula in making a distinction between material and immaterial events. It is a matter of judgment and it is left to the accountant for taking a decision. It should be noted that an item material for one concern may be immaterial for another. Similarly, an item material in one year may not be material in the next year.
- III. Convention of Consistency:** This convention means that accounting practices should remain unchanged from one period to another. For example, if stock is valued at cost or market price whichever is less; this principle should be followed year after year. Similarly, if depreciation is charged on fixed assets according to diminishing balance method, it should be done year after year. This is necessary for the purpose of comparison. However, consistency does not mean inflexibility. It does not forbid introduction of improved accounting techniques. If a change becomes necessary, the change and its effect should be stated clearly.
- IV. Convention of Conservatism:** This convention means a cautious approach or policy of “play safe”. This convention ensures that uncertainties and risks inherent in business transactions should be given a proper consideration. If there is a possibility of loss, it should be taken into account at the earliest. On the other hand, a prospect of profit should be ignored up to the time it does not materialize. On account of this reason, the accountants follow the rule ‘anticipate no profit but provide for all possible losses’. On account of this convention, the inventory is valued at cost or market price whichever is less. ‘The effect of the above is that in case market price has gone down then provide for the 'anticipated loss' but if the market price has gone up then ignore the 'anticipated profits.’ Similarly a provision is made for possible bad and doubtful debt out of current year's profits. Critics point out that conservatism to an excess degree will result in the creation of secrets reserves. This will be quite contrary to the doctrine of disclosure.

Activity

A business man follows the diminishing balance method for depreciating its assets, now he wants to switchover to Fixed Instalment method. Say whether he can do so, if yes which convention should he follow?

2.5 Generally Accepted Accounting Principles (GAAP)

GAAP is a term used to refer to the standard framework of guidelines for financial accounting used in any given jurisdiction which are generally known as Accounting Standards. GAAP includes the standards, conventions, and rules accountants follow in recording and summarizing transactions, and in the preparation of financial statements. The following is the list of accounting standards specified by the Institute of Chartered Accountants of India:

1. AS 1 Disclosure of Accounting Policies
2. AS 2 Valuation of Inventories
3. AS 3 Cash Flow Statements
4. AS 4 Contingencies and Events Occurring after the Balance Sheet Date
5. AS 5 Net Profit or Loss for the period, Prior Period Items and Changes in Accounting Policies
6. AS 6 Depreciation Accounting
7. AS 7 Construction Contracts (revised 2002)
8. AS 8 Accounting for Research and Development
9. AS 9 Revenue Recognition
10. AS 10 Accounting for Fixed Assets
11. AS 11 The Effects of Changes in Foreign Exchange Rates (revised 2003),
12. AS 12 Accounting for Government Grants
13. AS 13 Accounting for Investments
14. AS 14 Accounting for Amalgamations
15. AS 15 (revised 2005) Employee Benefits
16. AS 16 Borrowing Costs
17. AS 17 Segment Reporting
18. AS 18, Related Party Disclosures
19. AS 19 Leases
20. AS 20 Earnings Per Share
21. AS 21 Consolidated Financial Statements
22. AS 22 Accounting for Taxes on Income.
23. AS 23 Accounting for Investments in Associates in Consolidated Financial Statements
24. AS 24 Discontinuing Operation
25. AS 25 Interim Financial Reporting
26. AS 26 Intangible Assets

27. AS 27 Financial Reporting of Interests in Joint Ventures
28. AS 28 Impairment of Assets
29. AS 29 Provisions, Contingent Liabilities and Contingent Assets
30. AS 30 Financial Instruments: Recognition and Measurement and Limited Revisions to AS 2, AS 11 (revised 2003), AS 21, AS 23, AS 26, AS 27, AS 28 and AS 29
31. AS 31, Financial Instruments: Presentation
32. Accounting Standard (AS) 32, Financial Instruments: Disclosures, and limited revision to Accounting Standard (AS) 19, Leases

2.6 Systems of Accounting

There are basically two systems of accounting:

- (i) **Cash System of Accounting:** It is a system in which accounting entries are made only when cash is received or paid. No entry is made when a payment or receipt is merely due. Government system of accounting is mostly on cash system. Certain professional people record their income on cash basis, but while recording expenses they take into account the outstanding expenses also. In such a case, the financial statement prepared by them for determination of their income is termed Receipts and Expenditure Account.
- (ii) **Mercantile or Accrual System of Accounting:** It is a system in which accounting entries are made on the basis of amounts having become due for payments or receipts. This system recognizes the fact that if a transaction or event has occurred; its consequences cannot be avoided and therefore should be brought into books in order to present a meaningful picture of profit earned or loss suffered and also of the financial position of firm concerned.

The difference between “cash and mercantile systems” of accounting will be clear with the help of the following example:

A firm closes its books on 31st December each year. A sum of Rs 500 has become due for payment on account of rent for the year 1990. The amount has, however, been paid in January 1991.

In this case if the firm is following cash system of accounting, no entry will be made for having become due in the books of account of the firm in 1990. The entry will be made only in January 1991 when the rent is actually paid. However if the firm is following mercantile system of accounting, two entries will be made: (i) on 31st December 1990, rent will be debited while the landlord's account will be credited by the outstanding rent; (ii) in January, 1991 landlord's account will be debited while the cash account will be credited with the amount of rent actually paid.

The ‘mercantile system’ is considered to be better since it takes into account the effects of all transactions already entered into. This system is followed by most of the industrial and accounting firms.

2.7 Summary

Accounting principles may be defined as those rules of action or conduct which are adopted by accountants universally while recording accounting transactions. “They are a body of doctrines commonly associated with the theory and procedures of accounting, serving as an explanation of current practices and as a guide for selection of conventions or procedures where alternatives exist”. These principles can be classified in two categories:

1. **Accounting Concepts-** The term 'concepts' includes those basic assumptions or conditions Upon which the science of accounting is based.
2. **Accounting Conventions-** The term 'conventions' includes those customs or traditions which guide the accountant while preparing the accounting statements

2.8 Key Words

- Accounting Principles: rules of action or conduct adopted by the accountants universally while recording accounting transactions
- Accounting Concepts: basic assumptions or conditions upon which the science of accounting is based.
- Accounting Conventions: Customs and traditions which guide the accountants while preparing the accounting statements.
- Cash System of Accounting: A system in which accounting entries are made only when cash is received or paid.
- Mercantile System of Accounting: A system in which accounting entries are made on the basis of amounts having become due for payment or receipts. It is also termed as Accrual System of Accounting.
- Revenue : revenue in accounting means the income of a recurring nature from any source.It consists of the amount received from sales of goods and from services provided to customers.

2.9 Self Assessment Test

- (1) What do you understand by GAAP?
- (2) What do you mean by accounting assumption? State any three.
- (3) Which system of accounting is mostly used in manufacturing industry and why?
- (4) Explain the meaning and significance of business entity concept.

2.10 References Books

Grewal T.S, *Double Entry Bookkeeping*

Monga J.R., *Foundation Accountancy*

Unit - 3 Double Entry System of Accounting

Unit Structure

- 3.0 Objectives
- 3.1 Introduction
- 3.2 Meaning of Double Entry System of Accounting
- 3.3 Advantages of Double Entry System
- 3.4 Solved Illustrations
- 3.5 Summary
- 3.6 Key- Words
- 3.7 Self Assessment Test
- 3.8 References Books

3.0 Objectives

After studying this unit you should be able to understand:

- Meaning of Double Entry System of Accounting
- Meaning of Debit and Credit
- Rules of Debit and Credit
- Causes of popularity of Double Entry System
- Effect of Transactions on Accounting Equation
- Meaning of various Technical Accounting Terms

3.1 Introduction

A business transaction involves the transfer of value in the form of money, goods or services in terms of money from one party to another. One party gives some value and another party receives the same in exchange for an equivalent value. There is a reciprocal exchange of value between two parties, that is, each party receives value and gives value in exchange. It must be carefully noted that the giving and receiving aspects take place between accounts and in the same set of books.

In order to have complete record of each business transaction, its two-fold aspect must be recorded simultaneously. The best known system which recognises the two-fold aspect of every business transaction is called the Double Entry System. It is based upon the fact that just as every business transaction involves at least two parties so the record of each transaction must be made in the light of its two-fold aspects or two accounts.

3.2 Meaning of Double Entry System of Accounting

According to this concept, every business transaction is recorded as having a dual aspect. In other words, every transaction affects at least two accounts. If one account is debited, any other account must be credited. The system of recording transactions based on this concept is called as “Double Entry System”.

It is because of this principle that the two sides of the Balance Sheet are always equal and the following accounting equations will always hold good at any point of time :-

$$\text{Assets} = \text{Liabilities} + \text{Capital}$$

OR

$$\text{Capital} = \text{Assets} - \text{Liabilities}$$

3.2.1 Meaning of Debit and Credit

- **Account**

An account is a record of all business transactions relating to a particular person or item. In accounting we keep a separate record of each individual, asset, liability, expense or income. The place where such a record is maintained is termed as “Account”. Such as the account of Ram, the account of Rent, the account of Machinery, the account of Salary and likewise.

All accounts are divided into two sides. The left side of an account is arbitrarily or traditionally called Debit side and the right side of an account is called Credit side. In abbreviated form, Debit is written as Dr. and Credit is written as Cr.

3.2.2 The Debit-Credit Rules

- **Debit**

Credit rules are globally accepted accounting conventions that facilitate double entry book keeping. The rules are summarized in the table:

Item	Debit	Credit
Asset	Increase in Assets	Decrease in Assets
Liabilities	Decrease in Liabilities	Increase in Liabilities
Capital or Equity	Decrease in Capital or Equity	Increase in Capital or Equity
Income or Revenue	Decrease in Income or Revenue	Increase in Income or Revenue
Expense or Loss	Increase in Expense or Loss	Decrease in Expense or Loss

For example, if the Furniture is purchased in the business, Furniture is increased whereas the Cash is decreased. Furniture and cash both are assets for the firm. Thus Furniture account is debited and Cash account is credited.

Definition: - Double Entry System may be defined as follows:-

“The Double Entry System seeks to record every transaction in money or money’s worth in its double aspect- The receipt of a benefit by one account and the surrender of a like benefit by another account, the former entry being to the debit of the account receiving and the latter to the credit of that account surrendering.”

- William Pickles

“Every business transaction has a two-fold effect and that it affects two accounts in opposite directions and if a complete record were to be made of each such transaction, it would be necessary to debit one account and credit another account. It is this recording of the two-fold effect of every transaction that has given rise to the term Double Entry System.”

- J. R. Batliboi

Double Entry System is based upon the principle that “Every debit has a credit and every credit has a debit.”

Example:

Mr. A sold goods for cash Rs. 2,000 to Mr. B. In this case the dual aspects of this transaction for Mr. A and Mr. B are as follows:

Dual aspects for Mr. A	Dual aspects for Mr. B
1. Receipt of cash Rs. 2,000.	1. Payment of cash Rs. 2,000.
2. Foregoing of goods of Rs. 2,000.	2. Receipt of goods of Rs. 2,000.

3.3 Advantages of Double Entry System

- (1) **Scientific System:** - The transactions are recorded according to certain specified rules and as such, the system is more scientific as compared to any other systems of Book-Keeping.
- (2) **Complete record of transactions:** - In double entry system, both the debit and credit aspects of a transaction are recorded, so that if the need arises, full details of every transaction can be easily made available at any time in future.
- (3) **Preparation of Trial Balance:-** In double entry system, the amount recorded to the debit sides of various accounts will always be equal to the amounts recorded on the credit sides of various accounts. As such, trial balance can be prepared to check the arithmetical accuracy of the accounts.
- (4) **Preparation of Trading and Profit and Loss Account:-** With the help of trial balance, a trader can prepare a Trading Account to find out the amount of gross profit or gross loss. Similarly, a profit and loss account can be prepared to find out the net profit earned or loss suffered during a particular period.
- (5) **Knowledge of financial position of the business:-** In double entry system, separate accounts are opened for each and every asset and liability of the firm and as such, a Balance Sheet can be prepared which is a screen picture of the financial position of a business at a certain moment.
- (6) **Knowledge of various information:-** In double entry system, information regarding various items or persons is readily available at any point of time such as:
 - Amount of sales, purchase ;
 - Amount due to be received from customers or in other words , the total number of debtors and the amount in each case;
 - Amount due to be paid to suppliers or in other words , the total number of creditors and the amount in each case;
 - Amount paid on account of each head of expenses separately;
 - Amount earned on account of each head of income separately.
- (7) **Lesser possibility of fraud:-**This system of book-keeping records each transaction in two accounts, as such, there is hardly any scope of forgery and manipulations as compared to other systems.
- (8) **Legal approval:-** Double entry system meets legal requirements and books of accounts maintained under this system are accepted as true and reliable by the Companies Act and various other Acts.
- (9) **Comparative Study:** - Under this system, it helps the management to compare the expenditure of the current year with those of the previous years and check the unnecessary expenditure.
- (10) **Helps management in decision making:** - Under the system, the management can obtain all the requisite information quickly and hence, can use the information for making decisions.

(11) Suitable for all types of Businessman: - The system is so flexible that it can be conveniently introduced in small as well as big types of business.

3.4 Solved Illustrations

Illustration 3.4.1

A starts a new business and the following successive transactions take place:-

Transaction 1:- A started business with Rs. 75, 000 as Capital.

The effect of the transaction will be that the firm has received assets totaling Rs. 75, 000 in the form of cash and the claims against the firm are also Rs. 75, 000 in the form of capital. The transaction can be expressed in the form of an accounting equation as follows:-

Assets	=	Liabilities	+	Capital
Cash	=	Liabilities	+	Capital
75, 000	=	0	+	75, 000

Transaction 2:- A purchased Furniture for Cash Rs. 5, 000.

The effect of this transaction is that the cash is reduced by Rs. 5, 000, but a new asset of the same amount has been acquired. The transaction decreases one asset and at the same time increases the other assets with the same amount, leaving the total of the assets unchanged. The equation will now appear as follows:-

	Assets	=	Liabilities	+	Capital
	Cash + Furniture	=	Liabilities	+	Capital
Old equation	75, 000 + 0	=	0	+	75, 000
Transaction	(-)5, 000 + 5, 000	=	0	+	0
New equation	70, 000 + 5, 000	=	0	+	75, 000

Transaction 3:- A purchased goods for cash Rs. 20, 000.

As a result of this transaction, cash balance is reduced and another asset (goods) has come into existence, leaving the total of the assets unchanged. The equation will appear as follows:-

	Assets	=	Liabilities	+	Capital
	Cash + Furniture + Goods	=	Liabilities	+	Capital
Old equation	70, 000 + 5, 000 + 0	=	0	+	75, 000
Transaction	(-)20, 000 + 0 + 20, 000	=	0	+	0
New equation	50, 000 + 5, 000 + 20, 000	=	0	+	75, 000

Transaction 4:- A purchased goods on credit for Rs. 16, 000.

This transaction will increase goods on the assets side and will create a liability in the form of Creditors. (The persons from whom goods have been purchased on credit are called creditors.) The equation will be as follows:-

	Assets	=	Liabilities	+	Capital
	Cash + Furniture + Goods	=	Creditors	+	Capital
Old equation	50, 000 + 5, 000 + 20, 000	=	0	+	75, 000

Transaction	0	+ 0	+ 16, 000	=	16, 000	+	0
New equation	50, 000	+ 5, 000	+ 36, 000	=	16, 000	+	75, 000

Transaction 5:- Goods costing Rs. 12, 000 sold on credit for Rs. 15, 000.

This transaction will give rise to a new asset in the form of Debtors to the extent of Rs. 15, 000. (Debtors are those persons to whom goods have been sold on credit.) But the goods will be reduced only by Rs. 12, 000, the cost of goods sold. The net increase in assets Rs. 3, 000 is the amount of profit which will be added to the capital. The effect of the transaction has been explained in the following equation:-

Assets				=	Liabilities	+	Capital
Cash	+ Furniture	+ Goods	+ Debtors	=	Creditors	+	Capital
Old equation	50,000	+ 5,000	+ 36,000 + 0	=	16,000	+	75,000
Transaction	0	+ 0	- 12,000 + 15,000	=	0	+	3,000
New equation	50,000	+ 5,000	+ 24,000 + 15,000	=	16,000	+	78,000

Transaction 6:- Paid Rs. 1,000 for rent.

The effect of this transaction is that first, it reduces cash and secondly, as the rent is an expense, it results in a loss which decreases the capital. The revised equation will appear as follows:-

Assets				=	Liabilities	+	Capital
Cash	+ Furniture	+ Goods	+ Debtors	=	Creditors	+	Capital
Old equation	50,000	+ 5,000	+ 24,000 + 15,000	=	16,000	+	78,000
Transaction	(-)1,000	+ 0	+ 0 + 0	=	0	(-)	1,000
New equation	49,000	+ 5,000	+ 24,000 + 15,000	=	16,000	+	77,000

From the study of the above transactions it may be concluded that every transaction has a double effect and in each case Assets = Liabilities + Capital.

Illustration 3.4.2

Show the accounting equation on the basis of the following transactions:-

	Rs.
1. Started business with cash	1,20,000
2. Rent received	10,000
3. Invested in Shares	50,000
4. Received dividend	5,000
5. Purchased goods on credit from X	35,000
6. Paid cash for household expenses	7,000
7. Sold goods for cash (costing Rs. 10,000)	14,000
8. Cash paid to X	35,000
9. Deposited into bank	20,000

Solution**Accounting Equation**

SNo.	Assets				= Liabilities + Capital	
	Cash	Shares	Stock	Bank	= Creditors	+ Capital
1.Transaction	1,20,000	+ 0	+ 0	+ 0	= 0	+ 1,20,000
Equation	1,20,000	+ 0	+ 0	+ 0	= 0	+ 1,20,000
2.Transaction	+10,000	+ 0	+ 0	+ 0	= 0	+ 10,000
New Equation	1,30,000	+ 0	+ 0	+ 0	= 0	+ 1,30,000
3.Transaction	- 50,000	+ 50,000	+ 0	+ 0	= 0	+ 0
New Equation	80,000	+ 50,000	+ 0	+ 0	= 0	+
4.Transaction	1,30,000					
	+ 5,000	+ 0	+ 0	+ 0	= 0	+
	5,000					
New Equation	85,000	+ 50,000	+ 0	+ 0	= 0	+ 1,35,000
5.Transaction	0	+ 0	+ 35,000	+ 0	= 35,000	+ 0
New Equation	85,000	+ 50,000	+ 35,000	+ 0	= 35,000	+
6.Transaction	1,35,000					
	- 7,000	+ 0	+ 0	+ 0	= 0	-
	7,000					
New Equation	78,000	+ 50,000	+ 35,000	+ 0	= 35,000	+
7.Transaction	1,28,000					
	+14,000	+ 0	- 10,000	+ 0	= 0	+
	4,000					
New Equation	92,000	+ 50,000	+ 25,000	+ 0	= 35,000	+
8.Transaction	1,32,000					
	-35,000	+ 0	+ 0	+ 0	= -35,000	+ 0
New Equation	57,000	+ 50,000	+ 25,000	+ 0	= 0	+
9.Transaction	1,32,000					
	-20,000	+ 0	+ 0	+ 20,000	= 0	+ 0
Final Equation	37,000	+ 50,000	+ 25,000	+ 20,000	= 0	+
	1,32,000					

Explanation

Transaction 1:- Started business with cash Rs. 1, 20,000.

Accounts effected: - Assets: Cash increases.

Liabilities: Capital increases.

Transaction 2:- Rent received Rs. 10,000.

Accounts effected: - Assets: Cash increases.

Liabilities: Rent received is income, thus Capital increases.

Transaction 3:- Invested in Shares Rs. 50,000.

Accounts effected:- Assets : Investment in Shares is asset, thus Shares increases and Cash decreases.

Liabilities: No effect.

Transaction 4:- Received dividend Rs. 5,000.

Accounts effected: - Assets: Cash increases.

Liabilities: Dividend received is income, thus Capital increases.

Transaction 5:- Purchased goods on credit from X, Rs. 35,000.

Accounts effected: - Assets: Stock increases.
Liabilities: Creditors increases.

Transaction 6:- Paid cash for household expenses, Rs. 7,000.

Accounts effected: - Assets: Cash decreases.
Liabilities: Capital decreases.

Transaction 7:- Sold goods for cash (costing Rs. 10,000) for Rs.14, 000.

Accounts effected: - Assets: Cash, to the value of sales, increases; Stock, to the extent of cost, decreases.
Liabilities: Profit on sale is Rs. 4,000, thus Capital increases to the extent of Rs. 4,000.

Transaction 8:- Cash paid to X, Rs. 35,000.

Accounts effected: - Assets: Cash decreases.
Liabilities: Creditors decreases.

Transaction 9:- Deposited into bank, Rs. 20,000.

Accounts effected: - Assets: Cash decreases; Bank increases.
Liabilities: No effect.

Illustration 3.4.3

If the capital of a business is Rs. 2, 00,000 and outside liabilities are Rs. 50,000, calculate total assets of the business.

Solution

$$\begin{aligned}\text{Assets} &= \text{Liabilities} + \text{Capital} \\ &= \text{Rs. } 50,000 + \text{Rs. } 2, 00,000 \\ &= \text{Rs. } 2, 50,000.\end{aligned}$$

Illustration 3.4.4

If total assets of a business are Rs. 2, 00,000 and net worth (capital) is Rs. 1, 50,000, calculate creditors.

Solution:-

$$\begin{aligned}\text{Creditors (liabilities)} &= \text{Assets} - \text{Capital} \\ &= 2, 00,000 - 1, 50,000 \\ &= 50,000\end{aligned}$$

Illustration 3.4.5

- (a) X started business on 1st Jan. 2009 with capital of Rs. 1, 50,000 and a loan of Rs. 40,000 taken from HDFC Bank. On 31st Dec. 2009 his assets were Rs. 3, 00,000. Find out his capital on 31st Dec 2009 and profits made or losses incurred during the year 2009.
- (b) If in the above illustration, the proprietor had introduced additional capital of Rs. 25,000 and had withdrawn Rs. 8,000 for personal purposes, find out the profit.

Solution

$$\begin{aligned} \text{(a) Closing Capital} &= \text{Closing Assets} - \text{Closing Liabilities} \\ &= \text{Rs. } 3,00,000 - \text{Rs. } 40,000 \\ &= \text{Rs. } 2,60,000 \end{aligned}$$

$$\begin{aligned} \text{Profit} &= \text{Closing capital} - \text{Opening capital} \\ &= \text{Rs. } 2,60,000 - \text{Rs. } 1,50,000 \\ &= \text{Rs. } 1,10,000 \end{aligned}$$

$$\begin{aligned} \text{(b) Profit} &= \text{Closing capital} + \text{Drawing} - \text{Additional capital} - \text{Opening capital} \\ &= \text{Rs. } 2,60,000 + \text{Rs. } 8,000 - \text{Rs. } 25,000 - \text{Rs. } 1,50,000 \\ &= \text{Rs. } 93,000 \end{aligned}$$

3.5 Summary

Double entry system of Book-Keeping refers to a system of accounting under which both the aspects (i.e., debit and credit) of every transaction are recorded in the accounts involved.

The individual record of a person or thing is called account. Every debit has equal amount of credit. So the total of all debits must be equal to the total of all credits. This duality is the basis of double entry records.

Activity

A started business with a capital of Rs. 6,00,000/-. He introduced Rs. 16000/- during the year as an additional capital, while personal drawings Rs. 6000/-. At the end of the year closing capital Rs. 8,00,000/-. What is his profit for the year?

3.6 Key Words

- **Business:** Any work which is legal and done with the intention of earning profit is called business.
- **Capital:** Capital represents the amount invested by the trader in his business. It may be in the form of cash, goods or assets. In other words, the rights of the owner against the firm or the business are called owner's Equity or Capital. Capital is always equal to the difference between the assets and liabilities of the enterprise.
- **Goods:** Goods is applicable to that commodity which a trader purchases for resale. It is insignificant whether such a commodity is sold in the same form or after changing its form by processing. The following are example of goods.

'Fruit' for a fruit vendor ; 'Cloth' for a cloth merchant; 'Machinery' for a machinery dealer; and 'Timber' for a timber merchant. Goods may be classified as under.

- (a) **Purchases:** The goods which are purchased in the business for the purpose of reselling them are known as 'Purchases'. It may be cash purchases or credit purchases.
- (b) **Sales:** The goods which are purchased with a view to resale and when they are sold, they are known as 'Sales'. It may be cash sales or credit sales.
- (c) **Purchases Returns:** If the goods purchased are returned by the trader to its supplier due to any reason, they are called 'Purchases Returns' or 'Returns Outwards'.

- (d) Sales Returns: If any sold goods are returned by the customers to the trader for any reason, it is known as 'Sales Returns' or 'Returns Inwards'.
- (e) Stock: When, on a particular date, the goods remain unsold with the trader it is known as 'Stock'. At the end of the accounting period it is called 'Closing Stock' and the same on the first day of the next accounting period is known as 'Opening Stock'.
- **Transaction:** A transaction is a business dealing entered into by a trader with his customer or supplier. A transaction necessarily involves two parties. In every transaction, one of the two parties is the receiver of the benefit and the other party is the giver of the benefit.
 - **Entry:** 'Entry' means the recording of a business transaction in the books of accounts.
 - **Creditors:** Whenever the purchases are made on credit, the persons who supply such goods are known as 'Creditors'.
 - **Debtors:** The persons who take the goods and services on credit are called the 'Debtors'.
 - **Discount:** When an allowance is allowed by the trader to his customer from the amount of the saleable goods or from the receivable amount of cash it is known as 'Discount'. When it is allowed from the amount of saleable goods, it is called 'Trade Discount' and when it is allowed from the receivable amount of cash, it is called 'Cash Discount'.
 - **Assets:** Anything of value owned by a person or business is known as 'Assets'.
 - **Liabilities:** Anything owed, a debt, the claim of an outsider against the business is called a 'Liability'.
 - **Drawings:** The amount or the goods which are withdrawn from the business by the proprietor is known as his drawings.
 - **Turnover:** The total sales during a particular period-cash and credit sales are known as 'Turnover'.
 - **Account:** An account is a summarized record and systematic arrangement of transaction for a period affecting one person, one kind of property or one class of gains and losses.
 - **Bad Debts:** If the debtor is unable to make the payment standing in his name it is called 'Bad Debts'.
 - **Insolvent:** If a person is unable to redeem his loan, he is treated as insolvent. The liabilities of such person are more than the assets and he is not in a position to make full payments for the debts taken.

3.7 Self Assessment Test

1. What do you mean by double-entry system of accounting? State the rules of debit and credit.
2. If the capital of a business is Rs. 2, 40,000 and liabilities are Rs. 40,000, calculate the total assets of the business.
[Ans. 2, 80,000]
3. What entry (debit or credit) would you make to:-
 - (a) increase in revenue;
 - (b) decrease in expense;
 - (c) record drawings;
 - (d) Record the fresh capital introduced by the owner.
[Ans. (a) credit; (b) credit; (c) debit in capital account, (d) credit in capital account.]
4. The position of a businessman on 31st Mar, 2010 was as follows:-

Cash Rs. 5,000; Debtors Rs. 20,000; Machinery Rs. 60,000; Stock Rs. 25,000; Capital Rs. 75,000. Calculate his liabilities.

[Ans. Rs. 35,000]

5. If a transaction has the effect of decreasing an asset, is the decrease recorded as a debit or as a credit? If the transaction has the effect of decreasing a liability, is the decrease recorded as a debit or as a credit?

[Ans. Decrease in asset will be recorded on credit side; Decrease in liability will be recorded on debit side.]

6. A commenced business on 1st April, 2009 with a capital of Rs. 1,00,000. On 31st Mar, 2010, his assets were worth Rs. 1, 60,000 and liabilities Rs. 15,000. Find out his closing capital and profits earned during the year.

[Ans. Closing capital= Rs. 1, 45,000; Profit= Rs. 45,000]

7. Prove that the accounting equation is satisfied in all the transactions of M/s RamTraders:-

	Rs.
(a) Started business with cash	50,000
(b) Bought furniture for	500
(c) Purchased goods on credit	4,000
(d) Sold goods on cash (cost Rs. 500) for	700
(e) Received rent	200
(f) Purchased goods for cash	1,000
(g) Withdrew for personal use	700
(h) Paid to creditors	400
(i) Paid for salaries	200

[Ans. Cash Rs. 48,100; furniture Rs. 500; stock Rs. 4,500; creditors Rs. 3,600; capital Rs. 49,500.]

8. Use accounting equation to show the effect of the following transactions of M/s Ajay Traders:-

	Rs.
(a) Started business with cash	1, 20,000
(b) Purchased goods for cash	10,000
(c) Rent received	5,000
(d) Salary outstanding	2,000
(e) Prepaid insurance	1,000
(f) Received interest	700
(g) Sold goods for cash (costing Rs. 5,000)	7,000
(h) Goods destroyed by fire	500

[Ans. Cash Rs. 1, 21,700; stock Rs. 4,500; prepaid exp. Rs. 1,000; outstanding exp. Rs. 2,000; capital Rs. 1, 25,200.]

Hint. Salary outstanding is salary due but not paid, thus is a liability of the firm. Prepaid insurance is insurance paid but not due, thus is an asset of the firm. Goods destroyed by fire will result in decrease in stock and decrease in capital.

9. (a) A commenced business on 1st Jan. 2009 with a capital of Rs. 5, 00,000 and a loan of Rs. 1, 00,000 borrowed from Citi Bank. On 31st Dec. 2009, his assets were Rs. 8,00,000. Calculate his closing capital and profits earned during the year.
- (b) If in the above case, the proprietor had introduced fresh capital of Rs. 40,000 and had withdrawn Rs. 10,000 for personal purposes, calculate his profits.
- [Ans. (a) Closing capital Rs. 7, 00,000; profit Rs. 2, 00,000.
(b) Profit Rs. 1, 70,000.]

10. Mohit has the following transactions, prepare accounting equations:-

	Rs.
(a) Business started with cash	1, 75,000
(b) Purchased goods from Rohit	50,000
(c) Sold goods on credit to Manish (costing Rs. 17,500)	20,000
(d) Purchased furniture for office use	10,000
(e) Cash paid to Rohit in full settlement	48,500
(f) Cash received from Manish	20,000
(g) Rent paid	1,000
(h) Cash withdrew for personal use	3,000

[Ans. cash Rs. 1, 32,500; stock Rs. 32,500; furniture Rs. 10,000; capital Rs. 1, 75,000.]

11. Y started a business on 1st Jan. 2009 with a capital of Rs. 2, 00,000 and a loan of Rs. 75,000 from the bank. During the year, he had introduced additional capital of Rs. 60,000 and had withdrawn Rs. 36,000 for personal purposes. On 31st Dec. 2009 his assets were Rs. 3, 80,000. Find out his capital as on 31st Dec. 2009 and profit earned during the year 2009.

[Ans. closing capital Rs. 3, 05,000; profit Rs. 81,000.]

3.8 Reference Books

Paul, S. Kumar, *Book-keeping and Accountancy*

Grewal Shukla, *Accountancy*

Monga, J.R., *Foundation Accountancy*

Grewal T.S., *Double Entry Book-keeping*

Unit - 4 Journal and Ledger

Unit Structure

- 4.0 Objectives
- 4.1 Introduction
- 4.2 Types of Accounts
- 4.3 Journalisation
- 4.4 Recording of Special Transactions
- 4.5 Purchase Day Book
- 4.6 Sales Day Book
- 4.7 Cash Book
- 4.8 General Ledger
- 4.9 Summary
- 4.10 Key Words
- 4.11 Self Assessment Test
- 4.12 Reference Books

4.0 Objectives

After studying this unit you should be able to understand:

- Types of Accounts
- Meaning and Format of Journal
- Rules of Journalising
- Recording of Entries in a Journal
- Recording of Transactions in Special Purpose Subsidiary Books
 - Purchase Day Book
 - Sales Day Book
 - Cash Book
- Posting from Journal to Ledger

4.1 Introduction

The ultimate objective of the financial accounting is to prepare two basic financial statements: the income statement and the balance sheet. The accounting process helps in achieving that objective.

The details of each business transaction are first entered in source documents. Then there is recording of economic effects of each business transaction chronologically in the journal before posting to the ledger accounts pertaining to persons, properly, expenses and gains. Trial balance is extracted from the ledger which is base for financial statements.

4.2 Types of Accounts

- **Types of Accounts**

An account is a summarized record of business transactions and affects a particular type of asset, liability or capital. **Recording of business transaction in an account is called entry.** For the purpose of

recording, these transactions are classified into- (i) personal transactions; (ii) transactions related to assets, properties and liabilities; and (iii) transactions related to expenses, losses, income and gain. Based on this classification of transactions, the accounts are classified as shown in the chart given below:-

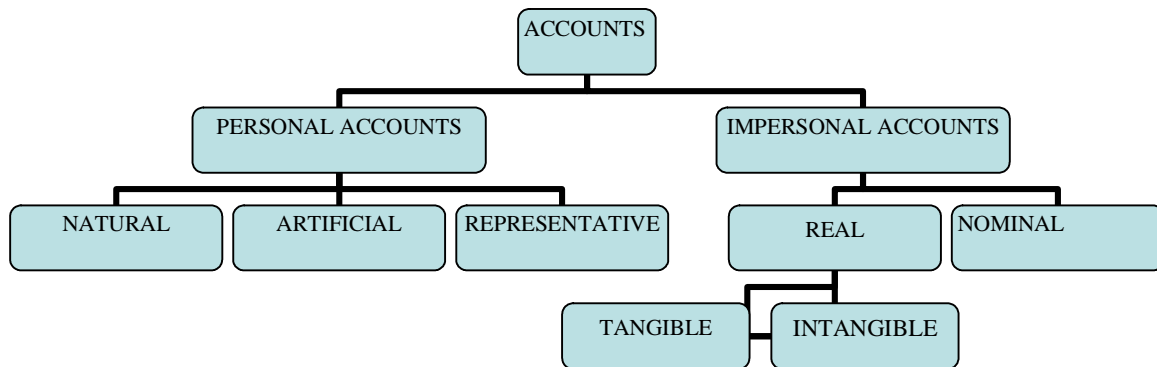


Figure - 4.1

4.2.1 Personal Accounts

The accounts which relate to an individual, firm, company or an institution are called personal accounts. Accounts of Mohan, Account of D. C. M. Ltd., Account of Delhi University, Bank Account, Capital Account of the proprietor, Drawings Account of the proprietor etc., are examples of Personal Accounts. Personal Accounts can be classified into the following three categories:-

- (a) **Natural Personal Accounts:** Accounts of 'Natural Persons' means the accounts of human beings. For example, Mohan A/c, Sohan A/c, Proprietor's Capital A/c, Debtors A/c, Creditors A/c are also included in this category.
- (b) **Artificial Personal Accounts:** These accounts do not have physical existence as human beings but they work as personal accounts. These are treated as artificial persons for the recording of personal transactions. For example, any Firm's account, any Company's account, accounts of government departments, any bank's account, etc.
- (c) **Representative Personal Accounts:** When an account represents a particular person or group of persons, it is termed as a representative personal account. For example, if the salaries for the month of December are not paid to the employees, the amount payable to these employees will be added and put under one common title "Salaries outstanding account". This account represents the accounts of all the persons to whom salaries have to be paid. This is therefore known as "Representative Personal account". Other examples are Prepaid Insurance Account, Unearned Commission Account.

4.2.2 Real Accounts

The accounts of all those things whose value can be measured in terms of money and which are the properties of the business are termed as Real Accounts, such as Cash Account, Furniture Account, Goodwill Account, etc. These are of two types:-

- (a) **Tangible Real Accounts:** These are the accounts of those things which can be touched, felt, measured, etc. Examples are Cash Account, Stock Account, Furniture Account, etc.
- (b) **Intangible Real Account:** These accounts represent such things which cannot be touched, but of course their value can be measured in terms of money. For example, Goodwill Account, Patent Account.

4.2.3 Nominal Accounts

These accounts include the accounts of all expenses and incomes. Examples - salaries paid, rent paid, bad debts, etc.

- **Debit credit rules:**

Classification	Debit-Credit Rules
Personal Account	Debit the receiver and Credit the giver
Real Account	Debit what comes in and Credit what goes out
Nominal Account	Debit expenses and losses and Credit revenue and gains

Activity
Bank Account and prepaid insurance account are in the nature ofaccount.

Illustration 4.2.1:

Analyze the following transactions, according to double entry system:

- (a) Ram started business with cash
- (b) Purchased furniture
- (c) Purchased goods for cash
- (d) Sold goods for cash
- (e) Received cash from Shayam
- (f) Deposited into bank
- (g) Withdrew from bank for office use
- (h) Received a cheque from a customer Shayam
- (i) Withdrew from bank for personal use
- (j) Withdrew cash for personal use
- (k) Sold goods to Shayam on credit
- (l) Purchased goods from Raman on credit
- (m) Purchased furniture from Mohan on credit
- (n) Borrowed from Mahesh
- (o) Deposited Shayam's cheque next day
- (p) Paid Raman by cheque
- (q) Paid salary
- (r) Paid rent by cheque
- (s) Goods withdrawn for personal use

Trans- actions	Accounts involved	Nature of accounts involved	How affected	Whether to be debited or credited
(a)	Cash A/c Capital A/c	Real Personal	Cash is coming in. Ram is the giver to the business.	Debit Credit
(b)	Furniture A/c Cash A/c	Real Real	Furniture is coming in. Cash is going out.	Debit Credit
(c)	Purchases A/c Cash A/c	Real Real	Goods are coming in. Cash is going out.	Debit Credit
(d)	Cash A/c Sales A/c	Real Real	Cash is coming in. Goods are going out.	Debit Credit

(e)	Cash A/c Shayam A/c	Real Personal	Cash is coming in. Shayam is the giver.	Debit Credit
(f)	Bank A/c Cash A/c	Personal Real	Bank is the receiver. Cash is going out.	Debit Credit
(g)	Cash A/c Bank A/c	Real Personal	Cash is coming in. Bank is the giver.	Debit Credit
(h)	Cash A/c Shayam A/c	Real Personal	Cash (in the form of cheque) is coming in. Shayam is the giver.	Debit Credit
(i)	Drawings A/c Bank A/c	Personal Personal	Ram is the receiver. Bank is the giver.	Debit Credit
(j)	Drawings A/c Cash A/c	Personal Real	Ram is the receiver. Cash is going out.	Debit Credit
(k)	Shayam's A/c Sales A/c	Personal Real	Shayam is the receiver. Goods are going out.	Debit Credit
(l)	Purchases A/c Raman's A/c	Real Personal	Goods are coming in. Raman is the giver.	Debit Credit
(m)	Furniture A/c Mohan's A/c	Real Personal	Furniture is coming in. Mohan is the giver.	Debit Credit
(n)	Cash A/c Loan from Mahesh A/c	Real Personal	Cash is coming in. Mahesh is the giver.	Debit Credit
(o)	Bank A/c Cash A/c	Personal Real	Bank is the receiver. Cash (in the form of cheque) is going out.	Debit Credit
(p)	Raman's A/c Bank A/c	Personal Personal	Raman is the receiver. Bank is the giver.	Debit Credit
(q)	Salary A/c Cash A/c	Nominal Real	Salary is an expense. Cash is going out.	Debit Credit
(r)	Rent A/c Bank A/c	Nominal Personal	Rent is an expense. Bank is the giver.	Debit Credit
(s)	Drawings A/c Purchases A/c	Personal Real	Ram is the receiver. Goods are going out.	Debit Credit

Activity

1. Patent account is a account.
2. Rule for Nominal account is :

4.3 Journalisation

4.3.1 General Principles

There are four phases in the accounting process:

1. Journalisation of transactions and events.
2. General ledger posting and balancing.
3. Preparation of a Trial Balance.
4. Preparation of Final Account, i. e., the Profit and Loss A/c and the Balance Sheet.

In the first phase, the transactions and events are analysed and recorded in the journal. Accountants use different types of journals, listed hereinafter, for recording different types of transactions and events.

1. Purchase day book : To record transactions relating to credit purchases of goods in trade.
2. Sales day book : To record transactions relating to credit sales.
3. Purchase return book : To record transactions relating to purchase returns.
4. Sales return book : To record transactions relating to sales return.
5. Cash book : To record cash, bank and discount transactions.
6. Journal proper : To record other transactions for which no specific journal is mentioned, and for recording entries to rectify mistakes in books of accounts.

Transactions and events are recorded in the journal in chronological order. The ledger folio in which the transaction is posted in the general ledger is entered in the journal for cross referencing. In addition, the 'Journal Proper' provides a brief narration of the transaction or the event. Papers or documents that evidence of the transaction or event should support each entry in the journal. Those papers and documents are known as Vouchers.

4.3.2 Journal

The business transactions, after their analysis, are listed in a chronological order day-by-day and first recorded in a book of accounts called journal. A **journal** is a chronological record of accounting transactions showing the names of accounts that are to be debited or credited, the amounts of the debits and credits, and any useful supplementary information about the transaction. **Journal is referred to as book of original or prime entry or simply subsidiary book.** A journal is a form of diary for business transactions.

Functions of journal:-

- (i) To keep a chronological (i.e., date-wise) record of all transactions.
- (ii) To analyse each transaction into debit and credit aspects by using double entry system of book-keeping.
- (iii) To provide a basis for posting into ledger.
- (iv) To maintain the identity of each transaction by keeping a complete record of each transaction at one place on a permanent basis.

The format of journal is shown as follows:-

Date	Particulars	L.F.No.	Dr. Amount (Rs.)	Cr. Amount (Rs.)
(1)	(2)	(3)	(4)	(5)

The columns have been numbered only to show how the Journal is written up; otherwise the columns are not numbered.

1. **Date Column:** This column shows the date on which the transaction is recorded. The year and the month are written once, till they change.
2. **Particulars Column:** Under this column, first the names of the accounts to be debited, then the names of the accounts to be credited and lastly, the narration (i.e., a brief explanation of the transaction) are entered.

3. **L. F. i.e. Ledger Folio Column:** All entries from the journal are later posted into the ledger accounts. The page number or folio number of the ledger account where the posting has been made from the journal is recorded in the L.F. column of the journal.
4. **Debit Amount Column:** Under this column, the amount to be debited is entered.
5. **Credit Amount Column:** Under this column, the amount to be credited is entered.

4.3.3 Journalising

The process of recording a transaction in the journal with the help of debit-credit rules of the double entry system is called Journalising. The various steps to be followed in journalising business transactions are given below:

- **Step 1:** Ascertain what accounts are involved in a transaction.
- **Step 2:** Ascertain what the nature of the accounts involved is.
- **Step 3:** Ascertain which rule of Debit and Credit is applicable for each of the accounts involved.
- **Step 4:** Ascertain which account is to be debited and which 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 the left hand side i.e. the line demarcating the 'Date column' and the 'Particulars column' along with the abbreviation 'Dr.' on the same line against the name of the account in the 'Particulars column', and the amount to be debited in the 'Debit Amount Column' against the name of the account.
- **Step 7:** Write the names of the account to be credited in the next line 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. The modern practice shows inclination towards omitting "Dr." and "To".
- **Step 8:** Write 'Narration' (i. e. a brief description of the transaction) within brackets in the next line in the 'Particulars column'.
- **Step 9:** Draw a line across the entire 'Particulars column' to separate one journal entry from the other.

Illustration 4.3.1

Record the following transactions in the journal of V:-

2010	Rs.
May 1 Commenced business with cash	5, 00,000
2 Goods purchased from M for cash	50,000
3 Goods purchased from A	1, 20,000
4 Goods returned to A	5,000
8 Goods sold to R	40,000
12 R returned 10% of goods	

Solution:

Journal of V

Date	Particulars	L. F. No.	Dr. Amount (Rs.)	Cr. Amount (Rs.)
2005 May 1	Cash A/c Dr. To Capital A/c (Amount brought in by V as Capital)		5, 00,000	5, 00,000
May 2	Purchases A/c Dr. To Cash A/c (Goods purchased from M for cash)		50,000	50,000
May 3	Purchases A/c Dr. To A A/c (Goods purchased from A)		1, 20,000	1, 20,000
May 4	A A/c Dr. To Purchases Return A/c (Goods returned to A)		5,000	5,000
May 8	R A/c Dr. To Sales A/c (Goods sold to R)		40,000	40,000
May 12	Sales Return A/c Dr. To R A/c (10% of goods sold to R returned by him: 10% of 40,000 = Rs. 4,000)		4,000	4,000
	Total	Rs.	7, 19,000	7, 19,000

4.3.4 Compound Journal Entries

The business transactions recorded in above illustration 2 are examples of single entry in which only two accounts are affected viz., one account to be debited and another to be credited with an equal amount. On the other hand, when more than two accounts are involved in a transaction and the transaction is recorded by a single journal entry instead of passing several journal entries, such single journal entry is termed as 'compound journal entry'. In a compound entry, there may be-

- Several accounts to be debited and only one to be credited; or
- One account to be debited and several others to be credited; or
- Several accounts are to be debited and several others to be credited.

Journal entries falling within classes (a) and (b) above are generally termed as 'single compound entries and those in class (c) are generally termed as 'double compound entries'.

A compound entry should never be made in order to combine two entries which are not related or which did not occur on the same date or where there is no common account to be debited (or credited) in more than one instance.

Illustration 4.3.2:

Journalise the following transactions:

2010

June 1 Purchased goods worth Rs. 300 from Vimal and Rs. 500 from Kamal on credit.

June 3 Sale of goods worth Rs. 1,000 to Balram and Rs. 700 to Dhanram.

June 5 Cash of Rs. 900 received from Ramasamy and Rs. 800 from Krishnasamy.

June 7 Paid Rs. 800 to Pradeep and Rs. 500 to Kuldeep.

June 9 Withdrawn from bank Rs. 600 for office use and Rs. 300 for personal use.

Solution:

Journal

Date	Particulars	L.F.	Dr. Amount (Rs.)	Cr. Amount (Rs.)
2010 June 1	Purchases A/c Dr. To Vimal A/c To Kamal A/c (Purchased goods worth Rs. 300 from Vimal and Rs. 500 from Kamal on credit)		800	300 500
June 3	Balram's A/c Dr. Dhanram's A/c Dr. To Sales A/c (Sale of goods worth Rs. 1,000 to Balram and Rs. 700 to Dhanram)		1,000 700	900

June 5	Cash A/c Dr. To Ramasamy's A/c To Krishnasamy's A/c (Cash of Rs. 900 received from Ramasamy and Rs. 800 from Krishnasamy)			1,700 900 800
June 7	Pradeep's A/c Dr. Kuldeep's A/c Dr. To Cash A/c (Paid Rs. 800 to Pradeep and Rs. 500 to Kuldeep)		800 500	1,300
June 9	Cash A/c Dr. Drawings A/c Dr. To Bank A/c (Withdrawn from bank Rs. 600 for office use and Rs. 300 for personal use)		600 300	900

4.4 Recording of Special Transactions

(1) **Trade Discount:** Trade discount is allowed by the seller of the goods to the buyer of the goods at a certain percentage of the catalogue or price list. It is not recorded in the books. Both, the seller and the buyer, make the entries in their books with the net amount of the goods, i.e. after deducting the amount of trade discount from the list price of the goods. If any goods from such goods are returned by the buyer, the entries for the returned goods will be made with the net amount after deducting the trade discount. For example, if a trader sales goods of the list price of Rs. 10,000 at 20% trade discount for cash, the entry will be:-

Cash A/c	Dr.	8,000	
			8,000
	To Sales A/c		

- (2) **Cash Discount:** Generally, goods are bought or sold on credit. In the case of credit sales, the purchaser is expected to pay the amount due to the seller within a fixed period. To encourage the buyer to make his payment within the stipulated period, the seller may allow the customer a certain deduction from the amount due from him. This deduction is called ‘cash discount’. It is recorded in the books. It is worth while to note that cash discount is calculated on the amount, which is arrived at by deducting trade discount out of the total amount of sale. For example, if a trader sells goods of the list price of Rs. 20,000 at 10% trade discount and 2% cash discount, the net amount will be calculated as under:

	Rs.
List price	20,000
Less: trade discount @ 10%	<u>2,000</u>
	18,000
Less: cash discount @ 2% (18,000 * 2%)	<u>360</u>
	<u>17,640</u>

It means that Rs. 17,640 will be paid if the payment is made in cash.

- (3) **Withdrawal of goods from the business by the proprietor:** The proprietor of the business, sometimes, takes goods from the business for his personal use like cash. In this respect the following entry is made:

Drawings A/c	Dr.	
		To Purchases A/c
(Goods taken away for personal use)		

- (4) **Goods given in charity:** Sometimes, the proprietor gives away in charity. Thus, goods given in charity is not treated as sale, hence it is a deduction in the amount of purchased goods. The entry is made as follows:

Donations/Charity A/c	Dr.	
		To Purchases A/c
(Goods given away in charity)		

- (5) **Distribution of free samples:** A trader distributes free samples of goods for the purpose of promoting sales. The cost of free samples so distributed is debited to ‘Advertisement or Publicity A/c’ and credited to ‘Purchases A/c’.

- (6) **Loss of goods on theft or other reasons:** Sometimes when goods are stolen from the business or goods are damaged by fire, or on any other account, there is a loss to the goods. Such a loss is considered as a business loss. In this case, ‘Loss on theft A/c’ or ‘Loss by fire A/c’ is debited, and ‘Purchases A/c’ is credited.

- (7) **Bad debts:** When any debtor does not pay the amount due from him on account of his insolvency or due to some other cause, it becomes irrecoverable and it is known as ‘bad debt’. In this situation the following entry is passed:

Bad debts A/c	Dr.	
		To Debtors Personal A/c
(The amount of bad debts)		

(8) Bad debts recovered: When any amount is debited to bad debts account previously, treating it as irrecoverable and later on if it is recovered, the following entry is made in this respect:

Cash A/c	Dr.
	To Bad debts recovered A/c
	(Bad debts recovered)

(9) On insolvency of a debtor: When any debtor becomes insolvent, the full payment cannot be realized from the property of the insolvent debtor; only partial payment is received and it is called 'Dividend'. Hence for whatever amount that is not realized; the entry in the books is made, treating it as bad debt.

Activity

Goods sold for Rs. 20000 at a trade discount 10% and cash discount 5% write down the Journal entry for the same.

Illustration 4.4.1

Record the following transactions of A & Co. in the journal proper form:

	Rs.
2010	
Jan 1 Assets: Cash in hand	500
Cash at bank	8,000
Stock of goods	4,000
Machinery	20,000
Furniture	5,000
Roy & Co. (amount due to A & Co.)	2,000
Sen & Co. (amount due to A & Co.)	3,000
Liabilities: Loan from State Bank of India (SBI)	10,000
Amount due to Vishwanath & Co.	5,000
Jan 2 Bought goods on credit from Patel & Co.	2,000
Jan 3 Sold goods for cash to Bose & Co.	500
Jan 4 Sold goods to Roy & Co. on credit	1,000
Jan 5 Received from Roy & Co. in full settlement of amount due on Jan 1	1,900
Jan 6 Payment made to Vishwanath & Co. by cheque (Vishwanath & Co. allowed discount of Rs. 50)	4,950
Jan 8 Old furniture sold for cash (Book value Rs. 300)	350
Jan 10 Bought goods for cash	1,000
Jan 11 Received cheque from Sen & Co., deposited in bank	3,000
Jan 12 Paid for repairs to machinery	200
Jan 13 Bought goods from Vishwanath & Co. on credit	2,000
Paid cartage on these goods	100
Jan 14 Received cheque from Roy & Co., deposited in bank	

(discount allowed to them Rs. 50)	950
Jan 17 Paid cheque to Vishwanath & Co.	2,000
Jan 18 Bank intimates that cheque received from Roy & Co. has been returned unpaid	950
Jan 19 Sold goods for cash to Dey & Co.	2,000
Jan 21 Cash deposited in bank	1,000
Jan 22 Paid municipal taxes in cash	100
Jan 25 Borrowed from New Age Investment Co., for erecting own Premises (amount deposited with bank)	20,000
Jan 26 Paid for advertisements	500
Jan 29 Sold old newspapers	50
Jan 31 Paid rent by cheque	500
Paid salaries for the month	500
Drawn by Mr. A out of the bank for personal use	500

Solution:

Journal

Date	Particulars	L. F.	Dr. Amount (Rs.)	Cr. Amount (Rs.)
2010 Jan 1	Cash A/c Dr. Bank A/c Dr. Stock A/c Dr. Machinery A/c Dr. Furniture A/c Dr. Roy & Co. A/c Dr. Sen & Co. A/c Dr. To Loan from SBI A/c To Vishwanath & Co. To Capital A/c (balancing fig.) (being the assets and liabilities brought forward from the previous reporting period)		500 8,000 4,000 20,000 5,000 2,000 3,000	10,000 5,000 27,500
Jan 2	Purchases A/c Dr. To Patel & Co. A/c (Bought goods on credit from Patel & Co. as per bill no....)		2,000	2,000
Jan 3	Cash A/c Dr. To Sales A/c (Sold goods for cash to Bose & Co. as per cash memo no...)		500	500
Jan 4	Roy & Co. A/c Dr. To Sales A/c (Sold goods to Roy & Co. on credit as per invoice no...)		1,000	1,000

Jan 5	Cash A/c Discount A/c To Roy & Co. A/c (Received from Roy & Co. in full settlement of amount due on Jan 1)	Dr. Dr.	1,900 100	2,000
Jan 6	Vishwanath & Co. A/c To Bank A/c To Discount A/c (being the amount paid by cheque to Vishwanath & Co. towards settlement of Rs. 5,000)	Dr.	5,000	4,950 50
Jan 8	Cash A/c To Furniture A/c To Profit on sale of furniture A/c (being profit on sale of old furniture, book value Rs. 300, payment received in cash)	Dr.	350	300 50
Jan 10	Purchases A/c To Cash A/c (being purchase of goods for cash as per cash memo no...)	Dr.	1,000	1,000
Jan 11	Bank A/c To Sen & Co. A/c (being cheque no... received from Sen & Co. and deposited in bank)	Dr.	3,000	3,000
Jan 12	Repairs to Machinery A/c To Cash A/c (being the amount paid for repairs to machinery as per bill no...)	Dr.	200	200
Jan 13	Purchases A/c To Vishwanath & Co. A/c (being goods purchased from Vishwanath & Co. as per invoice no...)	Dr.	2,000	2,000
Jan 13	Freight Inward A/c To Cash A/c (being freight paid on goods purchased from Vishwanath & Co.)	Dr.	100	100
Jan 14	Bank A/c Discount A/c To Roy & Co. A/c (being amount received from Roy & Co. vide cheque no... dated... drawn on..., discount allowed Rs. 50)	Dr. Dr.	950 50	1,000
Jan 17	Vishwanath & Co. A/c To Bank A/c (being amount paid to Vishwanath & Co. vide cheque no...dated...drawn on...)	Dr.	2,000	2,000
Jan 18	Roy & Co. A/c To Bank A/c To Discount A/c (being cheque no...dated...drawn on... received from Roy & Co., returned by bank unpaid)	Dr.	1,000	950 50

Jan 19	Cash A/c To Sales A/c (being goods sold for cash to Dey & Co. vide cash receipt no...)	Dr.		2,000	2,000
Jan 21	Bank A/c To Cash A/c (being cash deposited with bank)	Dr.		1,000	1,000
Jan 22	Municipal Taxes A/c To Cash A/c (being municipal taxes paid vide cash memo no...)	Dr.		100	100
Jan 25	Bank A/c To loan from New Age Investment Co (being amount borrowed for erecting old premises, received vide cheque no...dated...drawn on....)	Dr.		20,000	20,000
Jan 26	Advertisements A/c To Cash A/c (being amount paid towards advertisement in Vide cash memo no....)	Dr.		500	500
Jan 29	Cash A/c To Sale of newspapers A/c (being old newspapers sold)	Dr.		50	50
Jan 31	Rent A/c To Bank A/c (being Rent for the month of Jan, paid vide cheque no...dated...drawn on....)	Dr.		500	500
Jan 31	Salaries A/c To Cash A/c (being salaries for the month of Jan., paid)	Dr.		500	500
Jan 31	Capital A/c To Bank A/c (being amount drawn by Mr. A for private use vide cheque no... dated... Drawn...)	Dr.		500	500

In Illustration 4.4.1, we recorded all types of transactions in a 'Journal Proper'. However, in practice, cash and bank transactions are recorded in a Cash Book, credit purchases are recorded in a Purchase Day Book, credit sales are recorded in a Sales Day Book, and only the following types of transactions are recorded in the 'Journal Proper':

1. Opening entries: At the commencement of the reporting period, opening balances of assets, liabilities and equity are journalized to record carry forward balances in the books of accounts for the period.
2. Closing entries: At the close of the reporting period, while preparing the profit and loss account revenue, gain, expense and loss accounts are closed by transferring their balances in the general ledger to the profit and loss account through the journal proper.
3. Rectification entries: An error occurred while recording a transaction or event is rectified through the journal proper.
4. Transfer entries: Transfer from one account head to another account head is made through the journal proper.
5. Adjustment entries: At the close of a reporting period, expenses and revenue are adjusted to match expenses with revenue for the period. Usually, those entries pertain to outstanding expenses, prepaid expenses, interest on capital and depreciation. Adjustment entries are recorded in the journal proper.

6. Dishonouring of cheques and other negotiable instruments: Non-payment or dishonouring of negotiable instruments (promissory notes, bill of exchange and cheques) is taken on record through the journal proper.
7. Miscellaneous entries: Transactions other than credit purchases, credit sales and cash and bank transactions are recorded through the journal proper.

4.5 Purchase Day Book

In view of the large number of transactions, a separate journal entitled, 'purchase day book' is maintained by enterprises to record credit purchases. However, credit purchases, other than purchases of stock-in-trade or materials being used in the manufacturing process, are not recorded in the 'purchase day book'. Similarly, cash transactions are not recorded in this journal.

Enterprises also maintain a 'purchase return book' to record return of goods to suppliers.

Illustration 4.5.1 presents the format of a 'purchase day book'.

Illustration 4.5.1: A & Co. deals in ladies garments. The rough book of the firm shows the following transactions for the month of Jan 2010.

- Jan 1 Purchased from B & Co. on credit:
 10 cotton salwar suits @ Rs. 500 per suit
 10 silk salwar suits @ Rs. 1,500 per suit
 Less: Trade discount @ 10%
- Jan 10 Purchased in cash from C & Co.:
 2 cotton salwar suits @ Rs. 150 per suit
- Jan 15 Purchased a calculator for office use from B & Co. on credit for Rs. 500
- Jan 20 Purchased from Y & Co. on credit:
 10 cotton sarees @ Rs. 600 per saree
 10 silk sarees @ Rs. 2,000 per saree
 Less: Trade discount @ 10%
- Jan 31 Purchased 10 cotton suit lengths @ Rs. 300 per suit length from Z & Co. on credit
- Prepare the purchase day book of A & Co. for the month of Jan 2010.

Solution:

Purchase Day Book Of A & Co.

Date	Particulars	L. F.	Amount (Rs.)	Net Amount (Rs.)
Jan. 1 2010	M/s B & Co. 10 cotton salwar suits @ Rs. 500 10 silk salwar suits @ Rs. 1,500 Trade discount @ 10%		5,000 15,000 20,000 (2,000)	18,000
Jan. 20	M/s Y & Co. 10 cotton sarees @ Rs. 600 10 silk sarees @ Rs. 2,000 Trade discount @ 10%		6,000 20,000 26,000 (2,600)	23,400
Jan. 31	M/s Z & Co. 10 cotton suit lengths @ Rs. 300			3,000
	Total			44,400

Note: Transactions pertaining to cash purchase (Jan 10) and credit purchase of calculator (Jan 15) have not been recorded in the purchase day book.

The total of the purchase day book is posted to the general ledger through the journal proper periodically. The journal entry for Jan 2010 (illustration 4.5.1) should be as follows:

	Dr.	Cr.
Purchases A/c	Rs. 44,400	
To B & Co. A/c		Rs. 18,000
To Y & Co. A/c		Rs. 23,400
To Z & Co. A/c		Rs. 3,000

Usually, the number of transactions being large, personal accounts of individuals creditors is not maintained in the general ledger. Personal accounts of individuals creditors are maintained in a subsidiary ledger that does not form a part of the main books of accounts. Only the control account of creditors is maintained in the general ledger. The balance in the control account entitled 'trade creditors account', reflects the amount of liability towards suppliers of goods. The journal entry from the purchase day book should be as follows:

Purchases A/c	Dr.	Rs. 44,400
To Trade creditors A/c		Rs. 44,400

Individual accounts in the subsidiary ledger are posted from the purchase day book for each transaction. The aggregate of balances in individual accounts in the subsidiary ledger should agree with the balance appearing in the 'Trade creditors account' in the general ledger.

Subsidiary ledgers, which do not form part of the main books of accounts, are known as memorandum books, because accounting entries in those ledgers do not form a part of the double entry accounting system. Subsidiary ledgers are usually maintained for 'Trade debtors', 'Advance to employees', 'Advances from customers' and such other credit transactions where a large number of personal accounts are required to be maintained by the firm.

4.6 Sales Day Book

Enterprises record credit sales of stock-in-trade in a 'Sales Day Book'. The mechanics of posting entries from the sales day book to the general ledger and the subsidiary ledger for debtors are similar to those of postings from the purchase day book. The following illustration presents the format of a sales day book:

Illustration 4.6.1:

A & Co. deals in ladies' garments. The rough book of the firm shows the following transactions for the month of Jan 2010.

Jan 2 Sold to Alpha & Co. on credit:

5 cotton salwar suits @ Rs. 600 per suit

5 silk salwar suits @ Rs. 1,800 per suit

Less: Trade discount @ 10%

Jan 3 Sold old furniture to M & Co. for Rs. 100 on credit

Jan 8 Sold to Beta & Co. on credit:

5 cotton salwar suits @ Rs. 600 per suit

5 silk salwar suits @ Rs. 1,800 per suit

Less: Trade discount @ 10%

Jan 15 Sold 2 silk sarees to M/s. Beauty for Rs. 2,500 in cash

Jan 31 Sold to Gamma & Co. on credit:

10 cotton sarees @ Rs. 800 per saree

10 silk sarees @ Rs. 2,500 per saree

Less: Trade discount @ 10%

Prepare the sales day book of A & Co. for the month of Jan 2010.

Solution:

Sales Day Book of A & Co.

Date	Particulars	L.F.	Amounts (Rs.)	Net Amount (Rs.)
Jan. 2 2010	M/s Alpha & Co. 5 cotton salwar suits @ Rs. 600 5 silk salwar suits @ Rs. 1,800 Trade discount @ 10%		 3,000 9,000 12,000 (1,200)	 10,800
Jan. 8	M/s Beta & Co. 5 cotton salwar suits @ Rs. 600 5 silk salwar suits @ Rs. 1,800 Trade discount @ 10%		 3,000 9,000 12,000 (1,200)	 10,800
Jan. 31	M/s Gamma & Co. 10 cotton sarees @ Rs. 800 10 silk sarees @ Rs. 2,500 Trade discount @ 10%		 8,000 25,000 33,000 (3,300)	 29,700
	Total			51,300

Periodical posting of the total of the sales day book to the general ledger should be made through the following journal entry:

Trade Receivables A/c Dr. Rs. 51,300

To Sales A/c

Rs. 51,300

Postings to personal accounts of trade debtors should be made in the subsidiary ledger for trade debtors. As in the case of the purchase day book, the aggregate of balances in personal accounts in the subsidiary ledger should agree with the balance in the 'Trade receivables account', in the general ledger.

Enterprises also maintain a 'Sales Return Book' to record inward return of goods from customers.

4.7 Cash Book

Cash and bank transactions are recorded direct in the 'Cash Book'. A cash book is primarily a journal. It also serves the purpose of a ledger account and, therefore, the cash account and bank account are not maintained in the general ledger. Balances in the cash book are taken direct to the trial balance that lists out balances in various account heads in the general ledger. Thus, a cash book serves the dual purpose of maintaining a journal to record cash and bank transactions, and also maintaining cash and bank accounts in the general ledger. The following are the different types of cash books that are being maintained by enterprises:

1. Single-column cash book: It records only cash receipts and cash payments.
2. Double-column cash book: It provides additional information on discount received and discount allowed.
3. Three-column cash book: It has an additional column to record bank transactions.

The following illustration presents a single column cash book.

Illustration 4.7.1:

Record the following cash transactions entered by A & Co. in Jan 2010 in a single column cash book:

	Rs.
Jan 1 Cash-in-hand	1,000
Jan 6 Received from B & Co.	600
Jan 10 Paid rent	500
Jan 15 Sold goods for cash	2,000
Jan 27 Purchased furniture for cash	1,200
Jan 31 Paid salaries	800

A double-column cash book provides additional information on discount received and discount allowed. There are additional columns for discount on both debit and credit sides of the cash book. The total of discount columns are posted in the 'discount account' in the general ledger. Illustration 4.7.2 presents a double-column cash book.

Solution:

Cash Book of A & Co.

Dr.				Cr.			
Reciepts				Payments			
Date	Particulars	L. F.	Amount (Rs.)	Date	Particulars	L. F.	Amount (Rs.)
2010 Jan.1	To balance b/d		1,000	Jan.10	By rent a/c		500
Jan.6	To B & Co. a/c		600	Jan.27	By furniture a/c		1,200
Jan.15	To sales a/c		2,000	Jan.31	By salaries a/c		800
				Jan.31	By balance c/d		1,100
			<u>3,600</u>				<u>3,600</u>
Feb.1	To balance b/d		1,100				

Illustration 4.7.2: A & Co. commenced business on Jan 1, 2010 with a cash balance of Rs. 2,000 as capital. It had the following cash transactions for the month of Jan 2010. Prepare the cash book.

	Rs.
Jan 1 Purchased furniture	200
Jan 2 Purchased goods	300
Jan 4 Sold goods	400
Jan 6 Paid to B & Co.	500

	Allowed discount	20
Jan 15	Received from C & Co.	600
	Allowed discount	30
Jan 20	Purchased calculator	200
Jan 31	Paid Salaries	500

Solution:

Cash Book of A & Co.

Dr.				Payments				Cr.	
Dt.	Particulars	L F	Discount t (Rs.)	Cash (Rs.)	Dt.	Particulars	L F	Discount (Rs.)	Cash (Rs.)
2010 Jan 1	To Capital A/c			2,000	2010 Jan 1	By Furniture A/c			200
Jan 4	To Sales A/c			400	Jan 2	By Purchases A/c			300
Jan 15	To C & Co. A/c		30	600	Jan 6	By B & Co. A/c		20	500
					Jan 20	By Calculator A/c			200
					Jan 31	By Salaries A/c			500
					Jan 31	By balance c/d			1,500
	Total		<u>30</u>	<u>3,000</u>		Total		<u>20</u>	<u>3,000</u>
2010 Feb 1	To balance b/d			1,500					

In a three-column cash book, additional columns are provided to enter bank transactions. This helps to dispense with the 'bank account' in the general ledger. However, in case an enterprise operates more than one bank account, it is better to have a separate 'bank book' or 'bank accounts' in the general ledger. Illustration 4.7.3 presents a three-column cash book.

Illustration 4.7.3: A commenced business as A & Co. on Jan 1, 2010 with a cash balance of Rs. 2,000. Record the transactions for the month of Jan 2010 in a cash book with discount and bank columns.

	Rs.
Jan 1 Deposited cash with bank	1,500
Jan 4 Received cheque from B & Co.	1,000
Jan 5 C & Co. is paid by cheque. He allowed a discount of Rs. 20	330
Jan 6 Received cheque from M & Co. after allowing a discount of Rs. 50	450
Jan 10 Goods sold in cash to R & Co.	500
Jan 12 Cash drawn for office use	500
Jan 15 Paid for office expenses in cash	500
Jan 25 Paid salaries for Jan in cash	500
Jan 25 Cheque received from Y & Co.	400
Jan 31 Cheque received from Y & Co. returned unpaid by bank	400

Solution:

Cash Book of A & Co.

Dr.		Receipts				Payments				Cr.	
Dt.	Particulars	LF	Dis. (Rs)	Cash (Rs.)	Bank (Rs.)	Dt.	Particulars	L F	Dis. (Rs.)	Cash (Rs.)	Bank (Rs.)
2010 Jan 1	To Capital			2,000		2010 Jan 1	By Bank	C		1,500	
Jan 1	To Cash	C			1,500	Jan 5	By C & Co.		20		330
Jan 4	To B & Co.				1,000	Jan 12	By Cash	C			500
Jan 6	To M & Co.		50		450	Jan 15	By Office expenses				500
Jan 10	To Sales			500		Jan 25	By Salaries			500	
Jan 12	To Bank	C		500		Jan 31	By Y & Co.				400
Jan 25	To Y & Co.				400	Jan 31	By balance c/d			1,000	1,620
	Total		<u>50</u>	<u>3,000</u>	<u>3,350</u>		Total		<u>20</u>	<u>3,000</u>	<u>3,350</u>
2010 Feb 1	By balance b/d			1,000	1,620						

4.7.1 Petty Cash Book

As a matter of convenience, an imprest (a predetermined amount of cash) is sanctioned to some individuals authorized to make payments of small amounts of high frequency. Examples of such payments are: postage, conveyance, carriage, and stationery. The individual so authorized maintains a cash book known as a petty cash book. The individual periodically recoups his 'imprest' by submitting an account of payments released to him during the period. A petty cash book, usually has multiple columns to accommodate different types of payments.

4.8 General Ledger

After recording transactions in journals, the next phase in the accounting process is to prepare accounts in the general ledger. A general ledger is the principal book of accounts. Financial statements are prepared on the basis of balances in ledger accounts at the end of the accounting period. Journal entries provide information on accounts to be debited and credited in the general ledger. Therefore, journal entries form the basis for preparing accounts in the general ledger. Periodically, accounts in the general ledger are balanced. For example, if in a particular account the total of the debit side comes to Rs. 10,000 and the total of the credit side comes to Rs. 8,000, the account shows a debit balance of Rs. 2,000. Thus, a debit balance of Rs. 2,000 reflects that the total of the debit side exceeds the total of the credit side by Rs. 2,000. Illustration 4.8.1 explains the process of posting transactions from journal to accounts in the General Ledger. Accounts in the general ledger are often termed as Ledger Accounts.

Illustration 4.8.1: From the information provided in Illustration 4.4.1 prepare ledger accounts in the general ledger of A & Co.

Solution:

General Ledger of A & Co.: Capital A/c

Dr.				Cr.			
Date	Particulars	L. F.	Amount (Rs.)	Date	Particulars	L. F.	Amount(Rs.)
2010 Jan 31	To Bank A/c		500	2010 Jan 1	By balance b/d		27,500
31	To balance c/d		27,000				
			<u>27,500</u>				<u>27,500</u>
				Feb 1	By balance b/d		27,000

Cash A/c

Dr.				Cr.			
Date	Particulars	L. F.	Amount (Rs.)	Date	Particulars	L. F.	Amount(Rs.)
2010				2010			
Jan 1				Jan 10	By Purchases A/c		1,000
3	To balance b/d		500	Jan 11	By Repairs to Machinery A/c		200
5	To Sales A/c		500	Jan 13	By Freight Inward A/c		100
8	To Roy & Co.		1,900	Jan 21	By Bank A/c		1,000
19	To Sundries A/c		350	Jan 22	By Municipal Taxes A/c		100
29	To Sales A/c		2,000	Jan 26	By Advertisement A/c		500
	To Sale of newspapers A/c		50	Jan 31	By Salaries A/c		500
				Jan 31	By balance c/d		1,900
			<u>5,300</u>				<u>5,300</u>
Feb 1	To balance b/d		1,900				

Bank A/c

Dr.				Cr.			
Date	Particulars	L. F.	Amount (Rs.)	Date	Particulars	L. F.	Amount (Rs.)
2010				2010			
Jan 1				Jan 6	By Vishwanath & Co		4,950
11	To balance b/d		8,000	Jan 17	By Vishwanath & Co		2,000
14	To Sen & Co.		3,000	Jan 18	By Roy & Co.		950
21	To Roy & Co.		950	Jan 31	By Rent A/c		500
25	To Cash A/c		1,000	Jan 31	By Capital A/c		500
	To Loan from New Age Inv. Co. A/c		20,000	Jan 31	By balance c/d		24,050
			<u>32,950</u>				<u>32,950</u>
Feb 1	To balance b/d		24,050				

Stock A/c

Dr.				Cr.			
Date	Particulars	L. F.	Amount (Rs.)	Date	Particulars	L. F.	Amount (Rs.)
2010				2010			
Jan 1	To balance b/d		4,000	Jan 31	By balance c/d		4,000
			<u>4,000</u>				<u>4,000</u>
Feb 1	To balance b/d		4,000				

Machinery A/c

Dr.				Cr.			
Date	Particulars	L. F.	Amount (Rs.)	Date	Particulars	L. F.	Amount (Rs.)
2010 Jan 1	To balance b/d		20,000	2010 Jan 31	By balance c/d		20,000
			<u>20,000</u>				<u>20,000</u>
Feb 1	To balance b/d		20,000				

Furniture A/c

Dr.				Cr.			
Date	Particulars	L. F.	Amount (Rs.)	Date	Particulars	L. F.	Amount (Rs.)
2010 Jan 1	To balance b/d		5,000	2010 Jan 8	By Cash A/c		300
				Jan 31	By balance c/d		4,700
			<u>5,000</u>				<u>5,000</u>
Feb 1	To balance b/d		4,700				

Roy & Co. A/c

Dr.				Cr.			
Date	Particulars	L. F.	Amount (Rs.)	Date	Particulars	L. F.	Amount (Rs.)
2010 Jan 1	To balance b/d		2,000	2010 Jan 5	By Cash A/c		1,900
4	To Sales A/c		1,000	Jan 5	By Discount A/c		100
18	To Bank A/c		950	Jan 14	By Bank A/c		950
				Jan 14	By Discount A/c		50
				Jan 31	By balance c/d		950
			<u>3,950</u>				<u>3,950</u>
Feb 1	To balance b/d		950				

Sen & Co. A/c

Dr.				Cr.			
Date	Particulars	L. F.	Amount (Rs.)	Date	Particulars	L. F.	Amount (Rs.)
2010 Jan 1	To balance b/d		3,000	2010 Jan 11	By Bank A/c		3,000
			<u>3,000</u>				<u>3,000</u>

Loan from SBI A/c

Dr.				Cr.			
Date	Particulars	L. F.	Amount (Rs.)	Date	Particulars	L. F.	Amount (Rs.)
2010 Jan 31	To balance c/d		10,000	2010 Jan 1	By balance b/d		10,000
			<u>10,000</u>				<u>10,000</u>
				Feb 1	By balance b/d		10,000

Vishwanath & Co. A/c

Dr.				Cr.			
Date	Particulars	L. F.	Amount (Rs.)	Date	Particulars	L. F.	Amount (Rs.)
2010 Jan 6	To Bank A/c		4,950	2010 Jan 1	By balance b/d		5,000
6	To Discount A/c		50	Jan 13	By Purchases A/c		2,000
17	To Bank A/c		2,000				
			<u>7,000</u>				<u>7,000</u>

Purchases A/c

Dr.				Cr.			
Date	Particulars	L. F.	Amount (Rs.)	Date	Particulars	L. F.	Amount (Rs.)
2010 Jan 2	To Patel & Co.		2,000	2010 Jan 1			
10	To Cash A/c		1,000				
11	To Vishwanath & Co.		2,000	Jan 31	By balance c/d		5,000
			<u>5,000</u>				<u>5,000</u>
Feb 1	To balance b/d		5,000				

Patel & Co. A/c

Dr.				Cr.			
Date	Particulars	L. F.	Amount (Rs.)	Date	Particulars	L. F.	Amount (Rs.)
2010 Jan 31	To balance c/d		2,000	2010 Jan 2	By Purchases A/c		2,000
			<u>2,000</u>				<u>2,000</u>
				Feb 1	By balance b/d		2,000

Sales A/c

Dr.				Cr.			
Date	Particulars	L. F.	Amount (Rs.)	Date	Particulars	L. F.	Amount (Rs.)
2010 Jan 31	To balance c/d		3,500	2010 Jan 3	By Cash A/c		500
			<u>3,500</u>	Jan 4	By Roy & Co.		1,000
				Jan 19	By Cash A/c		2,000
							<u>3,500</u>
				Feb 1	By balance b/d		3,500

Discount A/c

Dr.				Cr.			
Date	Particulars	L. F.	Amount (Rs.)	Date	Particulars	L. F.	Amount (Rs.)
2010 Jan 5 14	To Roy & Co. To Roy & Co.		100 50	2010 Jan 6 Jan 31	By Vishwanath & Co. By balance c/d		50 100
			<u>150</u>				<u>150</u>
Feb 1	To balance b/d		100				

Profit on Sale of Furniture A/c

Dr.				Cr.			
Date	Particulars	L. F.	Amount (Rs.)	Date	Particulars	L. F.	Amount (Rs.)
2010 Jan 31	To balance c/d		50	2010 Jan 8	By Cash A/c		50
			<u>50</u>				<u>50</u>
				Feb 1	By balance b/d		50

Repairs to Machinery A/c

Dr.				Cr.			
Date	Particulars	L. F.	Amount (Rs.)	Date	Particulars	L. F.	Amount (Rs.)
2010 Jan 12	To Cash A/c		200	2010 Jan 31	By balance c/d		200
			<u>200</u>				<u>200</u>
Feb 1	To balance b/d		200				

Freight Inward A/c

Dr.				Cr.			
Date	Particulars	L. F.	Amount (Rs.)	Date	Particulars	L. F.	Amount (Rs.)
2010 Jan 13	To Cash A/c		100	2010 Jan 31	By balance c/d		100
			<u>100</u>				<u>100</u>
Feb 1	To balance b/d		100				

Municipal Taxes A/c

Dr.				Cr.			
Date	Particulars	L. F.	Amount (Rs.)	Date	Particulars	L. F.	Amount (Rs.)
2010 Jan 22	To Cash A/c		100	2010 Jan 31	By balance c/d		100
			<u>100</u>				<u>100</u>
Feb 1	To balance b/d		100				

Loan from New Age Inv. Co. A/c

Dr.				Cr.			
Date	Particulars	L. F.	Amount (Rs.)	Date	Particulars	L. F.	Amount (Rs.)
2010 Jan 31	To balance c/d		20,000	2010 Jan 25	By Bank A/c		20,000
			<u>20,000</u>				<u>20,000</u>
				Feb 1	By balance b/d		20,000

Advertisement A/c

Dr.				Cr.			
Date	Particulars	L. F.	Amount (Rs.)	Date	Particulars	L. F.	Amount (Rs.)
2010 Jan 26	To Cash A/c		500	2010 Jan 31	By balance c/d		500
			<u>500</u>				<u>500</u>
Feb 1	To balance b/d		500				

Sale of newspapers A/c

Dr.				Cr.			
Date	Particulars	L. F.	Amount (Rs.)	Date	Particulars	L. F.	Amount (Rs.)
2010 Jan 31	To balance c/d		50	2010 Jan 29	By cash c/d		50
			<u>50</u>				<u>50</u>
				Feb.1	By balance b/d		50

Rent A/c

Dr.				Cr.			
Date	Particulars	L. F.	Amount (Rs.)	Date	Particulars	L. F.	Amount (Rs.)
2010 Jan 31	To bank a/c		500	2010 Jan 31	By balance c/d		500
			<u>500</u>				<u>500</u>
Feb 1	To balance b/d		500				

Salaries A/c

Dr.				Cr.			
Date	Particulars	L. F.	Amount (Rs.)	Date	Particulars	L. F.	Amount (Rs.)
2010 Jan 31	To cash a/c		500	2010 Jan 31	By balance c/d		500
			<u>500</u>				<u>500</u>
Feb 1	To balance b/d		500				

4.9 Summary

In the double entry system, it was stated that it is possible to record all types of business transactions in the journal in the chronological order before posting then to the ledger. Now-a-days, the vast majority of transactions are recorded in the special journals such as cash book, purchase day book, sales day book, cash book etc.

The ledger contains in a summarised and a classified form a permanent record of all business transactions in the form of various accounts transferred to it from general journal and other books of original entry.

4.10 Key Words

- **Cash Journal:** A journal meant for recording all cash transactions.
- **Contra Entry:** An accounting entry which is recorded on both the debit and credit sides of Cash Book.
- **Imprest:** The amount advanced to the petty cashier in the beginning of a period.

4.11 Self Assessment Test

1. Prepare proper subsidiary journal (Books) and post to the ledger from the following transactions for the month of Feb 2010:

2010	Rs.
Feb 1 Goods sold to Sachin for	5,000
Feb 4 Purchased from Kushal Traders for	2,480
Feb 6 Sold goods to Manish Traders for	2,100
Feb 7 Sachin returned the goods for	600
Feb 8 Returns to Kushal Traders	280
Feb 10 Sold to Mukesh	3,300
Feb 14 Purchased from Kunal traders for	5,200
Feb 15 Furniture purchased from Tarun for	3,200
Feb 17 Bought of Naresh	4,060
Feb 20 Return to Kunal Traders for	200
Feb 22 Return Inward from Mukesh	250
Feb 24 Purchased goods from Kirti & Co. for list price of Rs. 5,700, Less 10% Trade Discount	
Feb 25 Sold to Shri Chand goods for Rs. 6,600, less 5% trade discount	
Feb 26 Sold to Ramesh Brothers for	4,000
Feb 28 Return Outwards to Kirti & Co. for Rs. 1,000, Less 10% trade discount	
Feb 28 Ramesh Brothers return the goods	500

2. What are the types of accounts? Give two examples of each
3. Write short notes on the following:-
 - (i) Narration
 - (ii) Petty Cash Book
 - (iii) Opening Entry
 - (iv) Compound Entry

4.12 Reference Books

Grewal, T.S., *Double - Entry Book-Keeping*

Paul, S. Kumar, *Book-Keeping and Accountancy*

Monga, J.R., *Foundation Accountancy*

Unit - 5 Trial Balance

Unit Structure

- 5.0 Objectives
- 5.1 Introduction
- 5.2 Meaning of Trial Balance
- 5.3 Features of Trial Balance
- 5.4 Objectives of Trial Balance
- 5.5 Preparation of Trial Balance
- 5.6 Steps to Locate the Errors
- 5.7 Types of Errors
- 5.8 Summary
- 5.9 Key Words
- 5.9 Self Assessment Questions
- 5.10 Reference Books

5.0 Objectives

After studying this unit, you will be able to

- State the meaning of trial balance
- Assess the characteristics of trial balance
- Enumerate the objectives of preparing trial balance
- Define the preparation of trial balance
- Identify steps to locate the Errors
- Explain the types of Errors

5.1 Introduction

A Trial Balance is a statement, prepared with the debit and credit balances of the ledger accounts to test the arithmetical accuracy of the books.

J.R. Batliboi

All the businessmen after completion of postings from Journal or Subsidiary Books to the Ledger, want to verify accuracy of the posting. On the basis of principal of accounting we know that for every debit there will be an equal credit. If the sum of all debits equal the sum of all credits, it is presumed that the posting to the ledger in terms of debit and credit amounts is accurate. The trial balance is a tool for verifying the correctness of debit and credit amounts. It is an arithmetical check under the double entry system which verifies that both aspects of every transaction have been recorded accurately.

5.2 Meaning of Trial Balance

A Trial Balance is prepared after having posted the journal entries into the Ledger and balancing the accounts. The balance of an account is the difference between the total of the debit side and the total of the credit side. It is called a 'Debit Balance', if the debit side total is greater. vice versa, it is called a 'Credit Balance', if the total of credit side is greater.

A Trial Balance is a statement showing the balances, or total of debit and credit sides of all the

accounts in the Ledger with a view to verifying the arithmetic accuracy of posting into the Ledger accounts. Trial Balance is an important statement in the accounting process, which shows final position of all accounts and helps to prepare the final statements.

According to Carter, “Trial Balance is the list of debit and credit balances, taken out from ledger. It also includes the balances of cash and bank taken from cash book.”

William Pickles defines the Trial Balance as, “The statement prepared with the help of ledger balances, at the end of financial year (or at any other date) to find out whether debit total agrees with credit total is called Trial Balance.”

Format of a Trial Balance

Trial Balance of as on March 31, 2010

Account Title	L.F.	Debit Amount (Rs.)	Credit Amount (Rs.)
Total			

- (i) Trial Balance is prepared on a particular date which should be written on the top.
- (ii) In the first column, the name of the account is written.
- (iii) In the second column, Ledger folio, i.e., the page number of the Ledger where the balance appears.
- (iv) In the third column, the total of the debit side of the account concerned or the debit balance, if any is entered.
- (v) In the fourth column, the total of credit side or the credit balance is written.
- (vi) The two columns are totalled at the end.

5.3 Features of Trial Balance

- (i) It is a list of balances of all ledger accounts and the cash book.
- (ii) It is just a statement, and not an account.
- (iii) It is neither a part of double entry system, nor does it appear in the actual books of accounts. It is just a working paper.
- (iv) It can be prepared at any time during the accounting period, say, at the end of every month, every quarter, every half year or every year. Usually it is prepared at the end of accounting year before preparing the final accounts.
- (v) It is always prepared on a particular date and not for a particular period.
- (vi) It verifies the arithmetical accuracy of posting of entries from the Journal to the Ledger.
- (vii) If the books are arithmetically accurate, the total of all debit balances of a trial balance will be equal to the total of all credit balances.

- (viii) A tallied Trial Balance is not a conclusive proof of the accuracy of the books of accounts since certain type of errors remain even when the Trial Balance tallies. For example, error of principle.

5.4 Objectives of Trial Balance

The Trial Balance is prepared to fulfill the following objectives :

1. To ascertain the arithmetical accuracy of the ledger accounts.
2. To help in locating errors.
3. To help in the preparation of the financial statements.
4. To obtain a summary of the ledger accounts.

(1) To Ascertain the Arithmetical Accuracy of Ledger Accounts

The purpose of preparing a trial balance is to ascertain whether all debits and credits are properly recorded in the ledger or not and that all accounts have been correctly balanced. It is a list of accounts and their balances. When the totals of all the debit balances and credit balances in the trial balance are equal, it is assumed that the posting and balancing of accounts is arithmetically correct. The tallying of the trial balance is not a conclusive proof of the accuracy of the accounts. It only ensures that both the aspects of each transaction have been posted into the ledger.

(2) To Help in Locating Errors

When a trial balance does not tally, we know that at least one error has occurred. The errors may have occurred at one of those stages in the accounting process : (i) totalling of subsidiary books, (ii) posting of journal entries in the ledger (iii) calculating account balances, (iv) carrying account balances to the trial balance (v) totalling the trial balance columns.

If the trial balance does not tally, then the accountant will then proceed to locate such errors. Even a small difference in the trial balance is to be given the same importance and attention as a large difference because it is possible that there may be a number of errors which have offset the effect of one another, resulting in a small composite difference.

(3) To Help in the Preparation of the Financial Statements

Trial Balance is considered as the connecting link between accounting records and the preparation of financial statements. For the preparation of financial statement, the availability of a tallied trial balance is the first step. Then the accountant need not refer to the ledger. All revenue and expenses accounts appearing in the trial balance are transferred to the trading and profit and loss account and all liabilities, capital and assets accounts are transferred to the balance sheet. Without trial balance, if it is not impossible but the work may be difficult.

(4) To Obtain Summary of Ledger Accounts

A trial balance serves as a summary of all the ledger accounts. Scanning the trial balance enables one to know the assets, liabilities, expenses, incomes etc. The ledger may have to be referred to only when more detail is required in respect of an account.

Activity - 5-1

1. "A Trial Balance is only a prime facie evidence of the arithmetical accuracy of records." - Do you agree with this statement ? Give reason.
2. Trial Balance facilitates the preparation of final accounts. Is it correct ? Give reason.

5.5 Preparation of Trial Balance

A trial balance may be prepared at any time, we can say, at the end of every month, quarter, half-year or year. Normally it is prepared at the end of the accounting period, so as to verify the arithmetical accuracy of the ledger accounts before the preparation of final accounts. It is always prepared on a particular date and not for a particulars period. There are three methods used for the preparation of a trial balance.

- (i) Balance Method (ii) Total Amount Method (iii) Total cum Balance Method

5.5.1 Balance Method

To prepare a trial balance under this method, all the accounts showing debit balances in the Ledger are put on the debit side of the trial balance and the accounts showing credit balances are put on its credit side. If an account shows no balance, the account is not included in the trial balance. After this process, the debit and credit columns of the trial balances are totalled and if the total is equal, it is clear that the trial balance has tallied. In trial balance, normally in place of balances in individual accounts of the debtors, a figure of sundry debtors is shown, and in place of individual accounts of creditors, a figure of sundry creditors is shown. This is the commonly used method of preparing a trial balance because it facilitates the preparation of the final accounts.

Illustration. 1

Given below is a Cash Book and Ledger extracts from the books of Mukesh Bros. as on 30th April 2010 :

CASH BOOK

Date	Particulars	L.F.	Cash	Bank	Date	Particulars	L.F.	Cash	Bank
2010			Rs.	Rs.	2010			Rs.	Rs.
April	To Capital		2,00,000		April	By Bank A/c C		1,50,000	
1	A/c				2	By Purch-			20,000
	To Cash A/c	C		1,50,000	4	ases A/c			
2	To Sales A/c		24,000			By Machin-			
6	To Ravi			4,50,000	12	ery A/c			25,000
20	To Rohit			2,50,000		By Rakesh			4,10,000
22					23	By Rent		4,000	
					25	By Salar-			
					30	ies A/c		14,000	
			2,24,000	8,50,000				1,68,500	4,55,000
						By Balance			
						c/d		55,500	3,95,000
			2,24,000	8,50,000				2,24,000	8,50,000
	To Balance								
	b/d		55,500	3,80,000					

Capital Account

Date	Particulars	Folio	Amount	Date	Particulars	Folio	Amount
2010			Rs.	2010			Rs.
April 30	To Balance c/d		2,00,000	April 1	By Cash A/c		2,00,000
				May 1	By Balance b/d		2,00,000

Purchases Account

2010			Rs.				
April 4	To Bank A/c		20,000				
30	To Sundries as per Purchases Book (Credit Purchases)		4,70,000				

Sales Account

			Rs.	2010			Rs.
				April 6	By Cash A/c		24,000
				30	By Sundries as per Sales Book (Credit Sales)		8,30,000

Rakesh

2010			Rs.	2010			Rs.
April 10	To Purchases Return A/c		2000	April 8	By Purchase A/c (Credit Purchase)		4,70,000
23	To Bank A/c		4,10,000				
23	To Balance c/d		58,000				
			4,70,000				4,70,000
				May 1	By Balance b/d		58,000

Ravi

2010			Rs.	2010			Rs.
April 10	To Sales A/c (Credit Sales)		5,30,000	April 20	By Bank A/c		4,50,000
			5,30,000	30	By Balance c/d		80,000
			80,000				5,30,000
May 1	By Balance b/d						

Rohit

2010			Rs.	2010			Rs.
April 11	To Sales A/c (Credit Sales)		3,00,000	April 22	By Bank A/c		2,50,000
			3,00,000	30	By Balance c/d		50,000
May 1	By Balance b/d		50,000				

Machinery Account

2010			Rs.	2010			Rs.
April 12	To Bank A/c		25,000	April 30	By Balance c/d		25,000
May 1	By Balance b/d		25,000				

Rent Account

2010			Rs				
April 25	To Cash A/c		4,000				

Salaries Account

2010			Rs				
April 30	To Cash A/c		14,500				

Salaries Account

			Rs	2010	By Sundries as per		Rs.
				April 30	Purchases Return Book		2,000

You are required to prepare the Trial Balance by the Balance Method.

SOLUTION

Trial Balance of Mukesh Bros.

as on 30th April 2010

Name of Accounts	L.F.	Balance Dr.	Balance Cr.
		Rs.	Rs.
Cash A/c		55,500	
Bank A/c		3,95,000	
Capital A/c			
Purchase A/c		4,90,000	2,00,000
Sales A/c			
Rakesh			8,54,000
Ravi		80,000	58,000
Rohit		50,000	
Machinery		25,000	
Rent A/c		4,000	
Salaries A/c		14,500	
Purchases Return A/c			2,000
Total		11,14,000	11,14,000

5.5.2 Total Amount Method

Under this Method, the total amount of debit side of each ledger account is put on the debit side of the trial balance and the total amount of credit side of each ledger account is put on this credit side of the trial balance. The total of debit column of trial balance should agree with the total of credit column in the trial balance because the accounts are based on double entry system. Under this method trial balance can be prepared immediately after the completion of posting to the ledger.

ILLUSTRATION 2.

Taking the same particulars as given in Illustration 1, prepare the Trial Balance by Total Amount Method.

SOLUTION :

TRIAL BALANCE OF MUKESH BROS.
as on 30th April 2010

Name of Accounts	L.F.	Balance Dr. Rs.	Balance Cr. Rs.
Cash A/c		2,24,000	1,68,500
Bank A/c		8,50,000	4,55,000
Capital A/c			2,00,000
Purchase A/c		4,90,000	
Sales A/c			8,54,000
Rakesh		4,12,000	4,70,000
Ravi		5,30,000	4,50,000
Rohit		3,00,000	2,50,000
Machinery		25,000	
Rent A/c		4,000	
Salaries A/c		14,500	
Purchases Return A/c			2,000
Total		28,49,500	28,49,500

5.5.3 Total-cum Balances Method

This method is a combination of total amount method and balances method. Under this method, four columns are prepared for writing amounts. First two columns are used for writing the debit and credit totals of different accounts and the next two columns for writing the debit and credit balances of these accounts. This method is not used in practice because it is time consuming and it does not serve any special purpose.

Illustration 3

Taking the same particulars as given in Illustration 1, prepare the Trial Balance by 'Totals-cum-balances Method' :

SOLUTION :**TRIAL BALANCE OF MUKESH BROS.****as on 30th April, 2010****(Using Total-cum-Balances Method)**

Name of Accounts	L.F.	Total of Debit Items	Total of Credit Items	Balance Dr.	Balance Cr.
		Rs.	Rs.	Rs.	Rs.
Cash A/c		2,24,000	1,68,500	55,500	
Bank A/c		8,50,000	4,55,000	3,95,000	
Capital A/c			2,00,000		
Purchase A/c		4,90,000		4,90,000	2,00,000
Sales A/c			8,54,000		
Rakesh		4,12,000	4,70,000		8,54,000
Ravi		5,30,000	4,50,000	80,000	58,000
Rohit		3,00,000	2,50,000	50,000	
Machinery		25,000		25,000	
Rent A/c		4,000		4,000	
Salaries A/c		14,500		14,500	
Purchases Return A/c			2,000		2,000
Total		28,49,500	28,49,500	11,14,000	11,14,000

5.5.4 Difference between a Trial Balance by Balance Method and a Trial Balance by Totals Method.

Trial Balance by Balance Method	Trial Balance By Totals Method
1. It can be prepared after all the Ledger accounts have been balanced.	It can be prepared immediately after the completion of posting from books of original entry to the Ledger.
2. It shows the balances of all the accounts in the Ledger	It shows the total amounts of the debit and credit sides in each Ledger Accounts.
It considers only those accounts which show a balance. If an account shows no balance, it will not be considered.	It considers all accounts of the Ledger.

5.5.5 Special Points may be noted for preparing a Trial Balance

The balances of accounts depends upon double entry system, so they have a fixed nature. In such a way the under mentioned points may be noted for preparing a trial balance : -

- (1) As all Assets have debit balances, their balances should be shown on the debit side of the Trial Balance. Assets include Cash, Bank Balance, Bills Receivable or B/R, Debtors, Furniture, Machinery, Building, Patents, Goodwill etc.

- (2) As all Liabilities have credit balances, their balances should be shown on the credit side of the Trial Balance. Liabilities include Bank Overdraft, Bills Payable or B/P, Creditors etc.
- (3) Capital account shows a credit balance, so it is written on the credit side of the Trial Balance
- (4) Drawings account shows a debit balance, as such it is written on the debit side of the Trial Balance.
- (5) I. Purchases Account always shows a debit balance.
 II. Sales Account always shows a credit balance.
 III. Purchases Returns Account always shows a credit balance.
 IV. Sales Returns Account always shows a debit balance.
- (6) All expenses and losses show debit balances, as such they should be written on the debit side of the Trial Balance.
- (7) All incomes and profits show credit balances, as such they should be written on the credit side of the Trial Balance.

Account Title	L.F.	Debit Amount Rs.	Credit Amount Rs.
Capital			-
Land and Buildings		-	
Plant and Machinery		-	
Equipment		-	
Furniture and Fixtures		-	
Cash in Hand		-	
Cash at Bank		-	
Debtors		-	
Bills Receivable		-	
Stock of Raw Materials		-	
Work in Progress		-	
Stock of Finished Goods		-	
Prepaid Insurance		-	
Purchases		-	
Carriage Inwards		-	
Carriage Outwards		-	
Sales			-
Sales Return		-	

Purchases Return			-
Interest Paid		-	
Commission/Discount Received			-
Salaries		-	
Long Term Loan			-
Bills Payable			-
Creditors			-
Outstanding Salaries			-
Outstanding Interest Earned		-	
Advances from Customers			-
Drawings		-	
Reserve Fund			-
Provision for Doubtful Debts			-
Total		xxx	xxx

5.6 Steps to Locate the Errors

Even if there is only a small difference in the trial balance, it is clear indication that at least one error has occurred. Steps must be taken to locate the errors which are causing difference. The following steps may be taken, to locate the errors:

- Step 1 Recheck the totals of both the debit and credit amount columns of the Trial Balance.
- Step 2 The exact figure of difference in the Trial Balance should be ascertained. After this, the subsidiary books should be gone through to see if any item of that amount remains unposted. For example, if the difference is of Rs. 2500, all the entries of Rs. 2500 should be scanned to ensure that they have been duly posted.
- Step 3 The difference should be halved to find out if some figure equal to half the difference has been posted on the wrong side of an account thereby making the difference double. For example, if the total of debit side of the Trial Balance exceeds by Rs. 2500, it is possible that a credit item of Rs. 1250 may have been posted to the debit side of a Ledger account.
- Step 4 The difference in the Trial Balance should be divided by 9. If the difference is completely divisible, it can be a mistake of transposition of figures. For example, if the figure of 974 is written as 479, the difference is of Rs. 495. This figure is completely divisible by 9, Likewise, if '0' is added against a figure, the difference will also be divisible by 9. For example, if the figure of 28 is written 280, the difference is Rs. 252 which is completely divisible by 9.
- Step 5 In case, the difference is in a round figure, say Re. 1, Rs. 10, Rs. 100 etc., there will be a possibility of wrong totalling or wrong carry forwards of the totals of a subsidiary

book or there will be an error in the balancing of an account. Hence, the totalling and balancing must be checked.

- Step 6 Re-do and check the correctness of balances of individual accounts in the Ledger that they have been included in the Trial Balance on the correct side and with the correct amount.
- Step 7 Check whether all the closing balances from the previous year's Balance Sheet have been correctly carried forward and recorded in respective ledger accounts.
- Step 8 Check the figures which are not clearly written.
- Step 9 It is possible that the balance of a certain Ledger account has not been included in the Trial Balance. Then the difference may be of a big amount. This can be detected by comparing the Trial Balance of the current year with that of the previous year. Also, if the figures of accounts under the same head show abnormal variation, the account should be rechecked to find out the cause of variation.
- Step 10 If, in spite of all the above efforts, there is still a difference in the Trial Balance, a complete checking of the postings of all the entries will be necessary. A check mark should be placed at the right of each amount to show that the item has been checked. It should also be checked that the totals of the subsidiary books have been posted to the relevant accounts in the Ledger.

5.7 Types of Errors

All errors may be classified into the following two categories :

- (1) Errors affecting Trial Balance (2) Errors not affecting Trial Balance

5.7.1 Errors Affecting Trial Balance

If the trial balance does not tally, it will indicate that certain errors have been committed which have affected the agreement of the trial balance. The accountant will then proceed to find out the errors and ultimately the errors will be located. Such errors are called errors which affect the agreement of Trial Balance. Until such errors are rectified, the trial balance will not agree. Some of these type of errors as follows: -

- (i) Wrong Posting : If the total of the Cash Book or some other Subsidiary Book is wrong, the trial balance will not tally. For example, the total of the Sales Book has been added Rs. 2000 in excess, when this total will be posted to the credit side of the sales account, it will also show an excess credit of Rs. 2000 and hence, the trial balance will not tally.
- (ii) Posting to the Wrong Side : If an amount is posted on the credit side of an account, instead of posting on the debit side or viceversa, the trial balance will not tally. For example, goods for Rs. 1000 have been purchased from Shyam, It is posted to the debit side of Shyam's account, instead of posting the amount on credit side, the debit side of the trial balance will exceed the credit by Rs. 2,000.
- (iii) Posting of Wrong Amount : If the posting in an account is made with an incorrect amount, the trial balance will not tally. For example, goods worth Rs. 6,000 have been sold to Ramesh, if it has been correctly entered in the sales book but while posting to Ramesh's debit side, the amount posted is Rs. 600 instead of Rs. 6,000. So the trial balance will not tally.
- (iv) Omission of Posting of One Side of An Entry : When the recording of transaction is partly omitted

from the books, the trial balance will not tally. For example, if Rs. 5,000 have been received from Suresh and correctly entered in the Cash Book, but if it is omitted to be posted on the credit side of Suresh's account, the trial balance will not tally.

- (v) Double Posting in a Single Account : When an amount is posted twice in an account, the trial balance will not tally. For example, if Rs. 2000 have been received from Mohan and correctly entered in the Cash Book, but if it is posted twice on the credit side of Mohan's account, the trial balance will not tally.
- (vi) Errors of Totalling and Balancing of Accounts in the Ledger : Errors may occur in the totalling of debit or credit sides of accounts in the Ledger or in the balancing of accounts in the Ledger. Because the balances of accounts are transferred to the Trial Balance, it will not tally.

5.7.2 Errors Not Affecting Trial Balance

The main object of preparing a Trial Balance is to check the accuracy of the accounts. However, the equality of debits and credits of the Trial Balance does not mean that there are absolutely no errors in the books of accounts. There may be a number of errors which may remain undetected in spite of the agreement of a Trial Balance. As such, it is true to say that 'Trial Balance is not a conclusive proof of the accuracy of the books of accounts.' There are certain errors which do not affect the agreement of the Trial Balance. Such errors are also called limitations of Trial Balance. These may be discussed as below :-

- (i) Errors of Omission : If a transaction remains altogether unrecorded either in the Journal or in Subsidiary Books, it will be termed as an error of omission. Such an error will not affect the agreement of a Trial Balance, as neither the transaction has been entered on the debit side of an account nor on the credit side of any other account. For example, suppose goods for Rs. 2,000 have been sold to Ram on credit and the transaction was omitted to be recorded in the books. The omission will not affect the Trial Balance in any way, because neither has it been recorded on the debit side of Ram's account nor on the credit side of sales account.
- (ii) Errors of Commission : Errors of commission are errors which arise due to wrong recording, wrong posting, wrong carry forward, wrong casting of subsidiary books, wrong balancing etc. If a wrong amount is entered either in the journal or in the subsidiary books, the trial balance will not tally because the same amount will be posted in both the accounts affected by the transaction. For example, Purchases of goods being recorded as Rs. 50,000 instead of Rs. 5,000.
- (iii) Compensatory Errors : When two or more errors are committed in such a way that the net effect of these errors on the debits and credits of accounts is nil, such errors are called compensatory errors. Such errors do not affect the tallying of the trial balance. For example, if purchases book has been overcast by Rs. 1,000, resulting in excess debit of Rs. 1,000 in purchases account and sales return book is undercast by Rs. 1,000 resulting in short debit to sales returns account is a case of two errors compensating each other's effect.
- (iv) Errors of Principle : Accounting entries are recorded as per the generally accepted accounting principles. When some fundamental principle of accountancy is violated while recording a transaction the error is termed as error of principle. An error of principle may occur due to incorrect classification of expenditure or receipt between capital and revenue. This is very important because it will have an impact on financial statements. It may lead to under/over stating of income or assets or liabilities. etc. For example, amount spent on additions to the buildings should be treated as capital expenditure and must be debited to the asset account. Instead, if this amount is debited to maintenance and repairs account, it has been treated as a revenue expense.

Activity -5.2

Which of these errors would be disclosed by the Trial Balance and why ?

- (i) Cheque of Rs. 9,500 from Manish entered into Manish's account as Rs. 5,900.
- (ii) Selling expenses have been debited to Sale Account ?
- (iii) Credit purchases of Rs. 1,000 entered in both the accounts as Rs. 100.
- (iv) A sales of Rs. 5,000 was omitted entirely from the books.

Activity -5.3

Which of the following do not affect the Trial Balance agreement and why ?

- (i) Purchases of Rs. 2,500 from Naman entered in Aman's account ?
- (ii) Payment of Rs. 2,000 for repair entered only in Repair account.
- (iii) Salary Account added up incorrectly by Rs. 1,000 being short totalled.

5.8 Summary

A Trial Balance is a statement of accounts appearing in the Ledger. It may be prepared either by taking the balances of each account or the total amounts of debit and credit items. The agreement of Trial Balance ensures arithmetical accuracy and not accounting accuracy. Functions of a Trial Balance are (i) to ascertain arithmetical accuracy. (ii) to provide summary of ledger accounts. (iii) to help in the preparation of final accounts. (iv) to help in locating errors. There are three methods of preparing a trial balance. These are (i) Balance method (ii) Totals method (iii) Total - cum - balances method. There are two types of errors (i) Errors affecting trial balance (ii) Errors not affecting trial balance. Errors not affecting trial balance are (a) errors of commission (b) errors of omission (c) errors of principle (d) compensating errors.

5.9 Key Words

- **Trial Balance:** A statement showing the balance or total of Debit and Credit sides of all accounts in the Ledger.

5.10 Self Assessment Test

1. What is a Trial Balance ? State any four functions of a Trial Balance.
2. Explain the methods of preparing Trial Balance.
3. What are the steps taken by an accountant to locate the errors in the trial balance ?
4. Is the agreement of a Trial Balance absolute proof of the accuracy of the books of accounts ? If not, what are the errors which remain even after agreement ?

5.11 Reference Books

Paul S. Kr., *Book-Keeping and Accountancy*

Grewal Shukla, *Accountancy*

Monga J.R., *Foundation Accountancy*

Grewal T.S., *Double Entry Book-Keeping*

Unit - 6 Final Accounts

Unit Structure

- 6.0 Objectives
- 6.1 Introduction
- 6.2 Classification of Capital and Revenue Items
- 6.3 Distinction between Capital and Revenue Items
- 6.4 Income Statement- Trading Account
- 6.5 Income Statement - Profit & Loss Accounts
- 6.6 Difference between Trading and Profit & Loss Account
- 6.7 Balance Sheet
- 6.8 Grouping of Assets and Liabilities
- 6.9 Classification of Assets and Liabilities
- 6.10 Distinction between Trial Balance and Balance Sheet
- 6.11 Methods of Preparing Final Accounts
- 6.12 Summary
- 6.13 Key Words
- 6.14 Self Assessment Test
- 6.15 Reference Books

6.0 Objectives

After studying this unit you will be able to understand :

- Meaning of financial statements
- Classification and distinction between capital and revenue items
- Meaning and formation process of Trading Account and Profit & Loss Account
- Meaning, importance and Preparation of Balance Sheet
- How grouping, Marshalling of Assets and Liabilities can be done
- Classification of Assets and Liabilities
- Distinction between Trading and Profit & Loss Account
- Methods of Preparing of Final Accounts

6.1 Introduction

Final Accounts refers to such statements which report the profitability and the financial position of the business at the end of the accounting period. These statements are called as “financial Statements” which is prepared to know profit or loss and also the financial position of the business. These statements are prepared for users of accounting information for decision making. Financial statements are prepared from the Trial Balance drawn taking the ledger balances and cash book balances. Final Accounts includes:

- (i) Income Statement (Trading and Profit & Loss Account), which shows results of the business operations during an accounting period.

- (ii) Statement of Financial Position (or Balance Sheet) which shows final position of the business at a specific point of time.

Objectives of preparing Final Accounts are :

- (i) To present a true and fair view of financial performance of a business;
- (ii) To present true and fair view of the financial position of the business.

6.2 Classification of Capital and Revenue Items

While preparing final accounts there are certain rules governing the classification of expenditure and receipts between capital and revenue. These are as follows :

6.2.1 Capital Expenditure

An amount spent by an institution on purchase of fixed assets that are used in the business to earn income and are not intended for resale. The benefit yield for over a period extending beyond the accounting period. Examples are: purchase of assets, installation of fixed assets, extension or improvement in fixed assets, expenditure incurred to acquire right to carryout of the business, legal charges for acquiring assets. Capital expenditure is debited to a fixed account which appears in the balance sheet.

6.2.2 Revenue Expenditure

It is an amount spent on running a business. The benefit of these expenditures is exhausted in the accounting period in which it is incurred. Examples : Day to day running expenses for business, expenses incurred for upkeep of fixed assets, expenditure incurred on purchases of goods which are used during the year, depreciation of fixed assets.

Activity 6.1

Can you think of an example which is wrongly treated as revenue expenditure but it is actually Capital expenditure ?

6.2.3 Deferred Revenue Expenditure

Revenue expenditure, which is incurred during an accounting period but the benefit arising out of it extends beyond that accounting period. Example : Large amount spent on advertisement of a new product, which will give benefit over a period. It is charged to profit and loss account in a phased manner, hence balance of such expenses is a fictitious asset and is to be shown in assets side of balance sheet.

6.2.4 Capital Receipts

An amount received in the form of additional capital introduced in the business, loan received and sale proceeds of the fixed assets are examples of Capital receipts. It either increases liabilities or reduce the assets.

6.2.5 Revenue Receipts

An amount received in the regular and normal course of the business i.e. receipts from sale of goods and services. It does not need to return to any one. These are shown in credit side of Income Statement.

6.3 Distinction between Capital and Revenue Items

6.3.1 Distinction between Capital Expenditure and Revenue Expenditure

S.No.	Capital Expenditure	Revenue Expenditure
1.	Its benefit extends to more than one year.	Its benefit extends to only one year.
2.	It is debited to an asset account.	It is debited to an expense account.
3.	It increases the earning capacity of the business	It is incurred for earning profits.
4.	It is incurred for acquisition of fixed assets	It is incurred to carry on the business
5.	It is a real account.	It is a nominal account.
6.	It is shown in the Balance Sheet.	It is part of the Trading or Profit and Loss Account.

6.3.2 Distinction between Capital Receipt and Revenue Receipt

S.No.	Capital Receipt	Revenue Receipt
1.	It is the amount realised by sale of fixed assets or by issue of shares or debentures or by loans taken.	It is the amount realised through sale of goods or rendering of services.
2.	It is an item of Balance Sheet.	It is an item of Trading and Profit and Loss Account.
3.	Capital receipts are normally of non-recurring nature.	Revenue receipts are normally of recurring nature
4.	Capital receipts are the receipts which are not obtained in normal course of business activities	. Revenue receipts are obtained in the course of normal trading operations.
5.	Capital receipts are normally not available for payment as profit to the owner of the business.	Revenue receipts net of revenue expenses and expired portion of capital expenditure/deferred revenue expenditure are available for distribution to the owner of the business.

Activity 6.2

Expenditure to launch a new product in the market, is called

6.4 Income Statement - Trading Account

It is a statement which is summary of accounts that affects the profit or loss of an enterprise. It is divided in two parts :

1. Trading Account : It reveals gross profit or gross loss, and
2. Profit and Loss Account : It reveals net profit or net loss.

6.4.1 Trading Account

It is the first phase in the process of preparing final accounts. It is prepared to show the results of manufacturing, buying and selling of goods.

Importance of Trading Account :

- (1) It provides information about the direct expenses
- (2) It provides information about gross profit or gross loss.

- (3) It compares closing stock with that of the previous year.
- (4) It provides safety against possible losses.

6.4.2 Preparation of Trading Account

- **Item written on the Dr. side of the Trading Account**

- (1) **Opening Stock** The closing stock of the last year becomes the opening stock of the current year. Opening stock will include the following: -

- I. Opening Stock of Raw Materials,
- II. Opening Stock of Semi-finished goods, and
- III. Opening Stock of Finished goods.

- (2) **Purchases & Purchases Return** Goods which have been bought for resale are termed as Purchases and goods which are returned to suppliers are termed as purchases returns or returns outwards. Purchase Account will be given on the debit side of the trial balance and Purchase Return Account on the credit side of the trial balance, Purchase returns will be shown as a deduction from Purchases on the debit side of the trading account. Purchases include cash as well as credit purchase.

- (3) **Direct Expenses** All expenses incurred in purchasing the goods, bringing them to the godown and manufacturing of goods are called direct expenses, Direct expenses include the following:

(i) **Wages** Wages are paid to workers who are directly engaged in the loading, unloading and production of goods and as such are debited to the trading account. It should be noted that if the item ‘Wages and Salaries’ is given in the question it will be shown on the trading account. On the contrary, if ‘Salaries and Wages’ is given it will be shown on the Profit & Loss Account.

(ii) **Carriage or Carriage Inwards or Freight** These expenses should be debited to trading account because these are generally paid for bringing goods to the factory or place of the business. However, if any carriage or freight is paid on bringing an asset, the amount should be added to the asset account and must not be debited to trading account.

(iii) **Manufacturing Expenses** All expenses incurred in the manufacture of goods are shown on the debit side of the trading account such as Coal, Gas, Fuel, Water, Power, Factory Rent, Factory Lighting etc.

(iv) **Import Duty or Custom Duty** Custom duty is paid on import as well as on export of goods. Custom duty when paid on the purchase of goods is charged to Trading Account. In the absence of specific instructions, these are debited to trading account.

(v) **Octori** The amount is levied by the Municipal Committee when the goods enter the city and hence debited to Trading Account.

(vi) **Royalty** This is the amount paid to the owner of a mine or patent for using his right or patent, Royalty is usually charged to Trading Account because it increases the cost of production. However, if it is specifically stated in the question that the Royalty is based on sales, it will be charged to Profit & Loss Account.

- **Items written on the Cr. Side of the Trading Account**

- (1) **Sales and Sales Returns** : - Both Cash and Credit sales will be included in sales. The sales account will be a credit balance whereas, the sales return account or returns inwards account will

be a debit balance. Sales return will be deducted out of Sales on the credit side of the trading account.

- (2) **Closing Stock :** - The goods remaining unsold at the end of the year is known as Closing Stock. It is valued at cost price or market price whichever is less. It includes the closing stock of raw material, closing stock of semi-finished goods and closing stock of finished goods.

Normally, the Closing Stock is given outside the Trial Balance. This is so because its valuation is made after the account have been closed. It is incorporated in the books by means of the following entry

Closing Stock A/c	Dr.
-------------------	-----

To Trading A/c

(Closing Stock transferred to Trading A/c)

When the above entry is passed, the Closing Stock Account is opened. On the one hand, it will be posted to the credit side of the trading account and on the other hand, will be shown on the Assets side of the Balance Sheet, in order to complete the double entry. Sometimes, the Closing Stock is given inside the Trial Balance. This will mean that the entry to incorporate the closing stock in the books has already been passed. It would imply that the Closing Stock must have been deducted out of Purchases Account. Hence, in such a case, Closing Stock will not be shown in the Trading Account but will appear on the Assets side of the Balance Sheet only.

6.4.3 Closing Entries Relating to Trading Account

- (i) Purchases Returns Account is closed by transferring its balance to Purchases Account. Following entry is recorded for this purpose :

Purchases Return A/c	Dr.
----------------------	-----

To Purchases A/c

(Transfer of Purchases Returns Account to purchases account)

- (2) Similarly, the Sales Returns Account is closed by transferring its balance to the Sales Account as:

Sales A/c	Dr.
-----------	-----

To Sales Return

(Transfer of Sales Return Account to Sales Account)

- (3) Closing Entry for those accounts which are to be transferred to the Dr. side of the Trading Account:

Trading A/c	Dr.
-------------	-----

To Opening Stock A/c

To Purchases A/c

To Wages A/c

To Direct Expenses A/c

To Carriage A/c

To Gas, Fuel & Power A/c

To Freight Octroi & Cartage A/c

To Manufacturing Exp. A/c

To Factory Rent & Lighting A/c

To Custom Duty A/c

To Royalty A/c

(The Transfer of above accounts to the Dr. Side of the Trading A/c)

- (4) Closing Entry for those accounts which are to be transferred to the Cr. Side of the Trading Account :

Sales A/c Dr.
 To Trading A/c

(The Transfer of above accounts to the Cr. Side of the Trading A/c)

- (5) Another Closing Entry is needed to close the Trading Account it self. If the credit side of the Trading Account exceeds the debit, the difference will be Gross Profit. The Gross Profit will be transferred to the credit of a newly opened account called Profit & Loss Account -

Trading A/c Dr.
 To Profit & Loss A/c

(The transfer of Gross Profit to the Credit Side of P & LA/c)

- (6) If the debit side of the Trading Account exceeds the credit, the difference will be Gross Loss, it will be transferred to the debit of P & LA/c by means of the following entry :-

Profit & Loss A/c Dr.
 To Trading A/c

(The Transfer of Gross Loss to the Debit side of P & LA/c)

Format of a Trading Account

Trading A/C

(for the year ended)

Dr.		Cr.	
Particulars	Amount	Particulars	Amount
	Rs.		Rs.
To Opening Stock		By Sales	
To Purchases		Less: Sales Return or	
Less: Purchases Returns or		Return inwards	
Purchases outward		By Closing Stock	
To Wages		By Gross loss	
To Wages & Salaries		(if any) transferred to	
		Profit	
To Direct Expenses		and Loss A/c	
To Carriage, or		(Balancing figure)	
To Carriage inwards, or			
To Carriage on Purchase			
To Gas, Fuel and Power			
To Freight, octroi and cartage			
To Manufacturing Expenses, or			
Productive Expenses			
To Factory Expenses, such as:			
Factory Lighting			
Factory Rent etc.			
To Import Duty or Custom Duty			
To Royalty			
To Gross Profit Transferred to P & L			
A/c			
(Balancing Figure)			

Illustration 1

Prepare a Trading Account for the year ended 31st March 2010 from the following balances :

	Rs.		Rs.
Opening Stock	30,000	Purchases Return	12,000
Purchases	12,00,000	Sales Return	20,000
Sales	15,00,000	Carriage on Purchases	8,000
Freight and Octroi	6,500	Carriage on Sales	10,000
Wages	30,000	Factory Rent	12,000
Factory Lighting	10,800	Office Rent	7,500
Coal, Gas and Water	2,700	Import Duty	32,000

Closing Stock is valued at Rs. 50,000.

Solution :

Trading A/C

(for the year ended 31 March 2010)

Particulars	Amount	Particulars	Amount
	Rs.		Rs.
To Opening Stock	30,000	By Sales	15,00,000
To Purchases	12,00,000	Less: Sales Return	<u>20,000</u>
Less : Purchases return	<u>12,000</u>	By Closing Stock	50,000
To Freight and Octroi	6,500		
To Wages	30,000		
To Factory Lighting	10,800		
To Coal, Gas and Water	2,700		
To Carriage on Purchases	8,000		
To Factory Rent	12,000		
To Import Duty	32,000		
To Gross Profit transferred			
To Profit & Loss A/c	2,10,000		
	<u>15,30,000</u>		<u>15,30,000</u>

- **Cost of Goods sold :**

Cost of Goods sold = Opening Stock + Purchases + Direct Expenses* - Closing Stock * Direct Expenses Means expenses debited to the Trading Account.

6.5 Income Statement - Profit and Loss Account

Trading account discloses the gross profit earned as a result of buying and selling of goods. However, a businessman has to incur a number of expenses which are not taken to trading account. Hence,

a businessman is more interested in knowing the net profit earned or net loss incurred during the year. As such, a Profit & Loss Account is prepared which contains all the items of losses and gains pertaining to the accounting period.

6.5.1 Importance of Profit & Loss Account

1. To ascertain the Net Profit or Net Loss
2. Comparison with previous years' profits
3. Control over Expenses
4. Helpful in the preparation of Balance Sheet.

6.5.2 Preparation of Profit and Loss Account

A Profit and Loss Account is started with the amount of gross profit or gross loss brought down from the Trading Account. Those expenses which have not been debited to Trading Account are now debited. It includes administrative expenses, selling expenses, distribution expenses etc. These are called 'Indirect Expenses.' Profit and Loss Account is a Nominal Account and as such, all the expenses and losses are shown on its debit side and all the incomes and gains are shown on its credit side.

● Items Written on the Dr. Side of Profit & Loss Account

1. Gross Loss : - If trading account discloses Gross Loss, it is shown on the debit side first of all.
2. Office and Administrative Expenses: - such as salary of office employees, office rent, lighting, postage, printing, legal charges, audit fees. etc.
3. Selling and Distribution Expenses :- as advertisement charges, commission, carriage outwards, bad-debts, packing charges etc.
4. Miscellaneous Expenses : - such as interest on loan, interest on capital, repair charges, depreciation, charity etc.

● Items Written on the Cr. Side of Profit & Loss Account

1. Gross Profit: - The starting point of the Cr. side of Profit & Loss Account is the gross profit brought down from the Trading Account.
2. Other Incomes and Gains : - All items of incomes and gains are shown on the credit side of the Profit & Loss Account, such as income from investments, rent received, discount received, commission earned, interest received, dividend received etc.

If the credit side of the profit and loss account exceeds that of debit side, the difference is termed as net profit. On the other hand, the excess of the debit side over the credit side is termed as net loss. Net profit is added to the capital whereas net loss is deducted from the capital.

6.5.3 Closing Entries relating to Profit and Loss Account

The preparation of Profit & Loss Account requires that the balances of all items concerned are transferred to it by posting the following closing entries :-

1. Accounts of various items of expenses and losses are transferred to the debit side of Profit and Loss Account by means of the following entry: -

Profit and Loss A/c	Dr.
To Rent, Rates and Taxes A/c	
To Printing and Stationery A/c	

To Postage and Telegrams A/c

To General Expenses etc.

(The transfer of nominal accounts showing Dr. balances to the Debit of P & LA/c)

2. Balances of all the accounts of incomes and gains will be transferred to the credit side of Profit and Loss Account by means of the following entry : -

Interest Received A/c	Dr.
Commission Received A/c	Dr.
Rent Received A/c	Dr.

To Profit & Loss A/c

(The transfer of nominal accounts showing Cr. balances to the Credit of P & LA/c)

3. For the transfer of credit balance of Profit & Loss A/c, known as net profit: -

Profit and Loss A/c	Dr.
To Capital A/c	

(The transfer of net profit to Capital A/c)

4. For the transfer of debit balance of Profit & Loss A/c, known as net loss : -

Capital A/c	Dr.
To Profit and Loss A/c	

(The transfer of net loss to Capital A/c)

Format of a Profit and Loss Account

Profit and Loss A/c

(For the year ending)

Dr.		Cr.	
Particular	Amount	Particular	Amount
	Rs.		Rs.
To Gross Loss b/d (Transferred from Trading A/c)		By Gross Profit b/d (Transferred from Trading A/c)	
Office expenses :		By Rent received	
To Salaries		By Discount received	
To Salaries & Wages		By Commission Received	
To Rent, Rates & Taxes		By Interest on Investment	
To Printing & Stationery		By Dividend on Shares	
To Postage & Telegram		By Bad-Debts Recovery	
To lighting		By Apprentice Premium	
To insurance Premium		By Profit on sale of Assets	
To Telephone Charges		By Income from other Sources	
To Legal Charges		By Miscellaneous Receipts	
To Audit Fees		By Net Loss (if any)	
To Traveling Expenses		Transferred to Capital A/c	

To Establishment Expenses			
To Trade Expenses			
To General Expenses			
Selling and Distribution Expenses:			
To Carriage Outwards,			
To Advertisement			
To Commission			
To Brokerage			
To Bad-debts			
To Export duty			
To Packing charges			
To Delivery Van Expenses			
To Stable expenses			
Miscellaneous expenses :			
To Discount			
To Repairs			
To Depreciation			
To Interest Paid			
To Bank Charges			
To Entertainment Expenses			
To Conveyance Expenses			
To Donation and Charity			
To Loss on Sale of Assets			
To Net Profit-			
Transferred to Capital			
A/c			

Notes: - (1) Those expenses which are not related to the business are not written in the Profit and Loss Account such as (I) Domestic and household expenses of the proprietor, (II) Income- Tax, and (III) Life Insurance Premium etc. These expenses are known as Drawings and deducted from Capital at the liabilities side of the Balance Sheet.

Illustration 2

From the following particulars, prepare a Profit & Loss Account for the year ending 31st March 2010 :-

	Rs.		Rs.
Gross Profit	2,00,000	Discount allowed	3,000
Trade Expenses	2,000	Lighting	700
Carriage on Sales	10,000	Commission Received	800
Office Salaries	15,800	Bad-debts	,1200
Postage and Telegram	700	Discount (Cr.)	6000
Office Rent	7,500	Interest on Loan	3,600
Legal Charges	400	Stable Expenses	1,400
Audit fee	1,600	Export Duty	2,300
Donation	1,100	Miscellaneous Receipts	500
Sundry Expenses	300	Unproductive Expenses	4,100
Selling Expenses	5,300	Travelling Expenses	2,500

Solution :

Profit & Loss Account

for the year ending on 31st March, 2010

Dr.		Cr.	
Particular	Amount	Particular	Amount
	Rs.		Rs.
To Trade Expenses	2,000	By Gross Profit	2,00,000
To Carriage on sales	10,000	By Commission received	800
To Office Salaries	15,800	By Discount	6000
To Postage & Telegram	700	By Miscellaneous Receipts	500
To Office Rent	7,500		
To Legal charges	400		
To Audit fee	1,600		
To Donation	1,100		
To Sundry expenses	300		
To Selling expenses	5,300		
To Discount allowed	3,000		
To Lighting	700		
To Bad - Debits	1,200		
To Interest on Loan	3,600		
To Export duty	2,300		
To Unproductive expenses	4,100		
To Travelling expenses	2,500		
To Net Profit transferred to Capital Account	1,45,200		
	2,07,300		2,07,300

6.6 Difference between Trading and Profit & Loss Account

Difference between Trading and Profit & Loss Account

S.No.	Trading Account	Profit and Loss Account
1.	The Gross Profit or Gross Loss is ascertained from the Trading Account.	The Profit and Loss Account is prepared to ascertain the net profit or net loss of the business.
2.	The balance of the Trading Account is transferred to the Profit and Loss Account.	The balance of the Profit and Loss Account is transferred to the Capital Account of the proprietor.
3.	Items shown in the Trading Account are purchases, sales, stock, direct expenses, etc.	Items like indirect expenses related to sales, distribution, administration, finance, etc., are shown in the Profit and Loss Account.

6.7 Balance Sheet

After ascertaining the net Profit or Loss of the business enterprise, the businessman would also like to know the exact financial position of his business. For this purpose a statement is prepared which contains all the Assets and Liabilities of the business enterprise. The statement so prepared is called a Balance Sheet because it is a sheet of balances of ledger accounts which are still open after the transfer of all nominal

accounts to the Trading and Profit & Loss Account. Balances of all the personal and real accounts are grouped as assets and liabilities. Liabilities are shown on the left hand side of the Balance Sheet and Assets on the right hand side. "A Balance Sheet is a statement prepared with a view to measuring the exact financial position of a business on a fixed date."

6.7.1 Importance of Preparing a Balance Sheet

1. To ascertain the true financial position of the business at a particular point of time.
2. To ascertain the nature and cost of various assets of the business.
3. To determine the nature and amount of various liabilities of the business.
4. To know about the exact amount of capital at the end of the year.
5. To prepare the Opening Entries at the beginning of the next year.

6.7.2 Drafting a Balance Sheet

1. A Balance Sheet is a part of the Final Accounts. This is the reason that the Trading and Profit and Loss Account and the Balance Sheet are together called 'Final Accounts'.
2. It is a statement and not an account. It has no debit or credit side and as such the words 'To' and 'By' are not used before the names of the accounts written therein.
3. It is a summary of the Personal and Real Accounts, which are still open and have not been closed by transfer to the Trading and Profit & Loss Account. Debit balances of all Personal and Real Accounts are put on the right hand side known as Assets side, whereas the credit balances are put on the left hand side known as liabilities side.
4. The totals of the two sides of the Balance Sheet must be equal. If the totals are not equal, there will be an error somewhere.
5. It is prepared on a particular date and not for a fixed period.
6. It shows the financial position of the business according to the going concern.

6.8 Grouping of Assets and Liabilities

The Assets and Liabilities shown in the Balance Sheet are properly grouped and presented in a particular order. The term 'grouping means showing the items of similar nature under a common heading.

'Marshalling' is the arrangement of various assets and liabilities in a proper order. Marshalling can be done in any of the following two ways.

6.8.1 In the Order of Liquidity

An asset which is most easily convertible into Cash such as Cash in hand is written first and then will follow those assets which are comparatively less easily convertible, so that the least liquid asset such as goodwill, is shown last.

In the same way, those liabilities which are to be paid at the earliest will be written first. In other words current liabilities are written first of all, then fixed or long-term liabilities and lastly, the proprietor's capital.

Proforma of a Balance Sheet in the order of liquidity will be as follows :

Balance Sheet

as on

Liabilities	Amount	Assets	Amount
	Rs.		Rs.
Bank Overdraft		Cash in Hand	
Bills Payable		Cash at Bank	
Sundry Creditors		Bills Receivable	
Outstanding Expenses		Short Term Investments	
Unearned Income		Sundry Debtors	
Long term loans		Closing Stock	
Reserves Capital		Prepaid Expenses	
Add : Net Profit		Accrued Income	
Add : Drawings		Long Term Investments	
Less : Income Tax		Furniture	
Less : Life Insurance		Losse Tools	
Premium		Motor Vehicle	
		Plant & Machinery	
		Land and Buildings	
		Patents	
		Goodwill	

6.8.2 In the Order of Permanence

This method is exactly the reverse of the first method. Assets which are most difficult to be converted into cash such as Goodwill are written first and the assets which are most liquid such as Cash in hand are written last. Similarly, those liabilities which are to be paid last, will be written first. In other words, the proprietor's capital is written first of all, then fixed or long term liabilities and lastly, the current liabilities. Joint stock companies are required under the Companies Act to prepare their Balance Sheet in the order of permanence.

6.9 Classification of Assets and Liabilities

6.9.1 Classification of Assets

- (i) **Fixed Assets** "Fixed Assets are assets of a relatively permanent nature used in the operations of business and not intended for sale". As the purpose of keeping such assets is not to sell but use them, changes in their market values are ignored and these are always shown in the Balance Sheet at cost less depreciation.
- (ii) **Current Assets** Current Assets are those which are either in the form of cash or can be easily converted into cash within one year of the date of the Balance Sheet.
- (iii) **Liquid Assets** Liquid Assets are those which are either in the form of Cash or can be quickly converted into cash, such as, Bills Receivable, Short Term Investments, Debtors, Accrued Income etc. In other words, if Prepaid Expenses and Closing Stock are excluded from Current Assets, the balance will be liquid Assets.
- (iv) **Fictitious or Nominal Assets** Which cannot be realised in Cash or no further benefit can be derived from these assets. Such assets include Debit balances of P & LA/c and the expenditure not yet written off such as Advertisement Expenses etc. These assets are not really assets but are shown on the Assets side only for the purpose of transferring them to the Profit & Loss Account gradually over a period of time.

- (v) **Wasting Assets** Which are exhausted or consumed over a period of time such as mines and oil- wells. Their value reduces through being used. These also include Patents and the properties taken on lease for a definite period of time.
- (vi) **Tangible and Intangible Assets** Tangible Assets are those which have a physical existence like Plant and Machinery, Building, Furniture, Stock, Cash etc. Intangible Assets are those which do not have any physical existence such as the Goodwill, Trade Marks, Patents etc.

6.9.2 Classification of Liabilities

- (i) **Fixed or Long-term Liabilities :** Those liabilities which are to be repaid after one year or more are termed as long-term liabilities. These include Public Deposits, Long-term Loans, Debentures etc.
- (ii) **Current or Short Term Liabilities :** Those liabilities which are expected to be paid within one year of the date of the Balance Sheet are termed as current or short - term liabilities. These include Bank Overdraft, Creditors, Bills Payable. Outstanding expenses etc.
- (3) **Contingent Liabilities :** These are the liabilities which will become payable only on the happening some specific event otherwise not such as:
 - (i) Liabilities for bill discounted
 - (ii) Liability in respect of a suit pending in a court of law
 - (iii) Liability in respect of a guarantee given for another person
- **Contingent liabilities are not shown in the Balance Sheet.** They are, however, shown as a footnote just below the Balance Sheet so that their existence may be revealed.

6.10 Distinction between Trial Balance and Balance Sheet

Distinction between Trial Balance and Balance Sheet of

S.No.	Trial Balance	Balance Sheet
1.	It is prepared to check the arithmetical accuracy of the books of accounts.	It is prepared to know the true financial position of the firm.
2.	It is not possible to have information about net profit or net loss from a trial balance.	Since net profit or loss is recorded in the Capital shown in Balance Sheet, it is possible to have the information about net profit or net loss from a Balance Sheet.
3.	The headings of its two columns are debit and credit.	The headings of its two sides are assets and liabilities.
4.	It is normally prepared every month or whenever needed.	It is normally prepared half-yearly or yearly at the end of the accounting period.
5.	All types of accounts whether personal, real or nominal must be written in it.	Only personal and real accounts are included in it.
6.	It can be prepared without making adjustments for outstanding expenses, prepaid expenses, accrued incomes etc.	It cannot be prepared without making adjustments for outstanding expenses, prepaid expenses, accrued incomes etc.

Illustration 3

From the following balances of a businessman, prepare a Balance Sheet as on 31st March, 2010.

	Dr. Rs.	Cr. Rs.
Plant & Machinery	80,000	
Land and Building	60,000	
Furniture	15,000	
Cash in Hand	2,000	
Bank overdraft		18,000
Debtors and Creditors	16,000	8,000
Bills Receivable and Bills Payable	10,000	6,000
Closing Stock	20,000	
Investments (Short-term)	8,000	
Capital		1,30,000
Drawings	10,000	
Net Profit		59,000
	2,21,000	2,21,000

BALANCE SHEET
as on 31st March, 2010

Liabilities	Amount	Assets	Amount
	Rs.		Rs.
Bank overdraft	18,000	Cash in hand	2,000
B/P	6,000	B/R	10,000
Creditors	8,000	Investments (Short-term)	8,000
Capital	1,30,000	Debtors	16,000
Add : Net Profit	<u>59,000</u>	Closing Stock	20,000
	1,89,000	Furniture	15,000
Less Drawings	<u>10,000</u>	Plant & machinery	80,000
	1,79,000	Land & Building	60,000
	2,11,000		2,11,000

Illustration 4

From the following Trial Balance of Shri Ram prepare Trading and Profit and Loss A/c for the year ending 31st March, 2011 and Balance Sheet as on that date. The Closing Stock on 31st March 2011 was value at Rs. 15,000.

	Rs.		Rs.
Stock (1.4.10)	10,000	Sundry Creditors	15,000
Purchases	75,000	Purchases Returns	3,000
Sales Return	8,000	Sales	2,50,000
Freight and Carriage	44,000	Commission	2,000
Salaries	12,000	Capital	1,70,000
Repairs	1,200	Interest on Bank Deposit	2,000
Trade Expenses	4,000	B/P	6,200
Rent and Taxes	24,000		
Cash in Hand	5,000		
B/R	4,000		
Debtors	55,000		
Plant and Machinery	1,60,000		
Withdrawals (Drawings)	16,000		
Bank Deposit	20,000		
	4,38,200		4,38,200

Solution :

Trading and Profit and Loss Account
for the year ending on 31st March, 2011

Dr.		Cr.	
Particulars	Amount	Particulars	Amount
	Rs.		Rs.
To Opening Stock	10,000	By Sales	2,50,000
To Purchases	75,000	Less Sales Return	<u>8,000</u>
Less: Purchase Returns	<u>3,000</u>	By Closing Stock	15,000
To Freight & Carriage	44,000		
To Gross Profit c/d	1,31,000		
	<u>2,57,000</u>		<u>2,57,000</u>
To Salaries	12,000	By Gross Profit b/d	1,31,000
To Repairs	1,200	By Commission	2,000
To Trade Expenses	4,000	By Interest on Bank Deposit	2,000
To Rent & Taxes	24,000		
To Net Profit transferred to Capital A/c	24,000		
	<u>1,35,000</u>		<u>1,35,000</u>

Balance Sheet
as on 31st March, 2010

Liabilities		Amount	Assets		Amount
		Rs.			Rs.
B/P		6,200	Cash in hand		5,000
Sundry Creditors		15,000	B/R		4,000
Capital	1,70,000		Sundry Debtors		55,000
Add : Net Profit	<u>93,800</u>		Closing Stock		25,000
	2,63,800		Bank Deposit		20,000
Less : Drawings	<u>16,000</u>	2,47,800	Plant & Machinery		1,60,000
		<u>2,69,000</u>			<u>2,69,000</u>

6.11 Methods of Preparing Final Accounts

The Trading and Profit and Loss Account and the Balance Sheet can be presented either in the Horizontal Form or in Vertical Form.

- (i) **Horizontal Form:** Under this form of presentation, the items are presented in “T” form, which we have already discussed in this chapter. The final accounts in the above illustrations have been prepared in horizontal form.
- (ii) **Vertical Form:** Under this form of presentation, the items are presented in a single column statement in a purposeful sequence.

The Vertical format of a Trading Account is given below.

Trading Account of A
for the year ended 31st March, 2011

Particulars	Rs.	Rs.	Rs.
Sales		200000	
Less: Returns Inwards		2000	198000
Opening Stock		10000	
Purchases	80000		
Less : Purchases Outwards	2000	78000	
Direct Expenses	2000		
Freight and Carriage	15000		
Customs and Insurance	20000		
Wages	20000		
Gas, Water and Fuel	2000		
Lighting and Heating	3000		
Factory Expenses	2000		
		64000	
		152000	
Less : Closing Stock		2000	
Cost of Goods Sold			150000
Gross Profit			48000

The Vertical format of Profit and Loss Account is given below.

Profit And Loss Account of A
for the year ended 31st March, 2011

Particulars	Rs.	Rs.
Gross Profit		48000
Discount Received	500	
Commission Received	600	
Bank Interest	100	
Rent of Property Let-out	300	
Profit on Sale of Machinery	150	
Profit on Sale of Investments	250	1900
		49900

Cont....

Particulars	Rs.	Rs.
Salaries (Administrative)	17000	
Office Rent, Sales and Taxes	6000	
Printing and Stationery	500	
Telehpone Charges	400	
Insurance	200	
Audit Fees	100	
Legal Fees	150	
Electricity Charges	250	
Repairs and Renewals	120	
Depreciation on Machinery	180	
Salaries (Selling Staff)	140	
Advertisement	160	
Godown Rent	1000	
Carriage Outwards	1500	
Bad Debts	1000	
Provision for Bad Debts	500	
Selling Commission	500	
Bank Charges	500	
Interest on Loans	600	
Discount on Bills	400	
Discount Allowed to Customers	300	
Loss on Sale of Fixed Asset	400	
Loss on Sale of Investment	400	
Loss by Fire or Accident	400	32700
Net Profit transferred to Capital A/c		17200

The Vertical Format merely involves a rearrangement of the information shown by a Balance Sheet presented in the Horizontal Format. The Vertical Format of a Balance Sheet is shown below (using imaginary figures):

Balance Sheet of Z

as at 31st March, 2008

Particulars	Rs.	Rs.	Rs.
Fixed Assets			
Land		2,00,000	
Building		10,00,000	
Plant and Machinery		4,00,000	
Furniture		2,00,000	
Delivery Van		6,00,000	
			24,00,00
Current Assets			
Stock	5,00,000		
Debtors	3,00,000		

Bills Receivable	1,00,000		
Cash at Bank	30,000		
Cash in Hand	70,000	10,00,000	
Current Liabilities			
Creditors	3,00,000		
Bills Payable	80,000		
Outstanding Expenses	20,000	4,00,000	
Working Capital (Current Assets - Current Liabilities)			6,00,000
Net Assets Employed			30,00,000
Financed by			
Capital		25,00,000	
Add: Net Profit		5,00,000	
			30,00,000

6.12 Summary

The term financial statements as used to denote 'Final Accounts' consists of two basic statements : (1) Trading and Profit and Loss Account (Income statement) (2) Balance Sheet. The users of financial statements are present and potential investors, lenders, short terms creditors employees, customers, government, tax authorities, providers of loan, which satisfy their specific needs. Trading account contains the revenue incomes and expenditures which are related to purchases or goods manufactured i.e. direct expenses related to production. This account shows gross profit or loss. Profit & Loss account contains all indirect expenses related to business and all indirect incomes related to enterprise. It shows net profit or loss. The Balance Sheet is a statement, which depicts the financial position of a business on a particular date. Income statements is a period statement whereas Balance Sheet is a point statement. Grouping & marshalling refers to collect same nature of items in one group and arrange them in a particular order. Vertical presentation is a system of presentation of information of trading, profit and loss Account and Balance Sheet instead of side by side, in such a way that important information are revealed to the readers a a glance.

6.13 Key Words

- **Final Accounts** - Financial statement which includes Trading Account, Profit and Loss Account and Balance Sheet. It is prepared to know profit earned in a particular period and to know the financial position of a particular date.
- **Contingent Liabilities**- A liability that becomes payable on the happening of an event. If the event does not happen, no amount is payable examples : Liabilities in respect of bills discounted, disputed loans etc.
- **Wasting Assets** - Which are exhausted over a period of time. Their value reduces through being used. Examples : Patents taken on a lease for a definite period, mines & oil wells.

- **Intangible Assets** - Those which do not have any physical existence like, goodwill, Trade mark, Patents. These assets are valuable as tangible assets.
- **Fictitious Assets** - Which cannot be realised in cash or no further benefit can be derived from these assets. These are like deferred revenue expenditure of which benefit is derived over a period of more than one year. Such assets are advertisement expenses. Debit balance of Profit and Loss Account.

6.14 Self Assessment Test

1. Explain the following terms :
(a) Capital Expenditure (b) Revenue Expenditure (c) Contingent Liabilities (d) Wasting assets
2. Distinguish between :
(1) Capital Receipts and Revenue Receipts (2) Capital Expenditure and Revenue Expenditure
(3) Trial Balance and Balance Sheet.
3. Give five examples of each of the following :
(a) Direct Expenses (b) Indirect Expenses
4. What do you mean by “Grouping and Marshalling a Balance Sheet ?
5. List out the 4 examples of each of the following :
(i) Fixed Assets
(ii) Current Assets
(iii) Contingent Liabilities
6. Prepare the Trading and Profit & Loss Account and Balance Sheet of Jagat Shah as on 31st March, 2008 from the following balances :

	Rs.		Rs.
Capital (Cr.)	3,600	Salaries	600
Machinery	700	General Expenses	200
Sales	8,200	Rent	500
Purchases	4,000	Purchases Returns	50
Sales Returns	100	Debtors	3,000
Stock on April 1, 2010	1,000	Cash	400
Drawings	400	Carriage Outward	200
Wages	1,000	Advertising	200
Carriage Inward	50	Creditors	500

Closing Stock was valued at Rs. 2,000

7. From the following Trial Balance, prepare a Trading and Profit and Loss Account for the year ending March 31, 2010 and the Balance Sheet as on that date:

	Rs.	Rs.
Capital		5,00,000
Plant & Machinery	1,00,000	
Land and Buildings	1,20,000	
Sales		8,00,000
Furniture and other Equipment	60,000	
Trade Expenses	30,000	
Cash at Bank	2,50,000	
Wages and Salaries	60,000	
Repairs	10,000	
Purchases	5,00,000	
Opening Stock	2,00,000	
Sundry Creditors/Sundry Debtors	1,00,000	1,30,000
Purchases Returns		10,000
Rent		12,000
Discount	8,000	
Drawings		35,000
Bills Receivable/Bills Payable	10,000	10,000
Bad Debts	45,000	
Interest	4,000	
	14,97,000	15,82,000

The Stock on 31st March, 2010 was valued at Rs. 1,40,000.

6.15 Reference Books

Paul S. Kr., *Book-Keeping and Accountancy*

Grewal Shukla, *Accountancy*

Monga J.R., *Foundation Accountancy*

Grewal T.S., *Double Entry Book-Keeping*

Unit - 7 Cost Accounting

Unit Structure

- 7.0 Objectives
- 7.1 Introduction
- 7.2 Terminology of Cost Accounting
- 7.3 Objectives of Cost Accounting
- 7.4 Cost Accounting vs. Financial Accounting
- 7.5 Cost Accounting vs. Management Accounting
- 7.6 Advantages of Cost Accounting
- 7.7 Limitations of Cost Accounting
- 7.8 Types of Costing
- 7.9 Methods of Costing
- 7.10 Cost, Expenses and Losses
- 7.11 Classification of Costs
- 7.12 Codification of Costs
- 7.13 Elements of Costs
- 7.14 Determination of Total Cost
- 7.15 Summary
- 7.16 Key Words
- 7.17 Self Assessment Test
- 7.18 Reference Books

7.0 Objectives

After studying this unit you should be able to understand :

- Terminology of Cost Accounting
- Objectives and Advantages of Cost Accounting
- Cost Accounting differentiated from Financial Accounting and Management Accounting
- Limitations of Cost Accounting
- Types of Costing
- Classification of Costs
- Codification of Costs
- Elements of Cost
- Determination of Total Cost

7.1 Introduction

Prior to industrial revolution, there was a need of book-keeping, because business were small and it is characterised between individuals. By the seventeenth century in France and eighteenth century in

England, the cost accounting information gathered by one or two manufacturing organisation. During world war I and II the importance of cost accounting grew due to high defence expenditure of each country. The emphasis of industry in general has very rightly turned to reduction in costs while improving internal efficiencies and product quality. In the current scenario it has become difficult in the industry to sustain and survive unless the costs are correctly accounted for, controlled and reduced so as to sustain and remain in the industry. In the period of severe competition, financial accounting has failed to meet the expeptations of owners in this regard. Issues such as cost determination, cost control, cost reduction and product pricing paved the way for the emergence of cost accounting.

7.2 Terminology of Cost Accounting

- **Cost:** It may defined as the amount of expenditure either actual or notional incurred on or attributable to a given thing or to ascertain to cost of a given thing. Hence cost is the amount of resources used for something, which can be measured in terms of money.
- **Costing:** It is defined as “the techniques and process of ascertaining costs. Weldon defines “costing as the classifying, recording and appropriate allocation of expenditure for the determination of cost of products or services and for the presentation of suitably arranged data for purposes of control and guidance of management. It deals with the cost of production, selling and distribution.”
- **Cost Accounting:** Weldon defines it as “the classifying, recording and appropriate allocation of expenditure for determination of costs of products or services, the relation of these costs to sales values, and the ascertainment of profitability. It deals with collection, analysis of relevant cost data for interpretation and presentation for various problem of management.”
- **Cost Accountancy:** CIMA defines Cost Accountancy as “the application of costing and cost accounting principles, methods and techniques to the science art and practice of cost control and the ascertainment of profitability as-well-as presentation of information for the purpose of managerial decision making.”

7.3 Objectives of Cost Accounting

The important objectives of cost accounting are as follows:

1. To ascertain of cost per unit.
2. To determine the selling price.
3. To control over cost and to minimise cost.
4. To ascertain cost of each division/unit/activity/centre.
5. To help the management in decision making.
6. To provide a base for operating policies.
7. To provide basis for comparative analysis.
8. To facilitate cost estimation.
9. To facilitate continuous review and help in speedy preparation of reports.

7.4 Cost Accounting vs. Financial Accounting

1. Transcations are identified with cost units whereas in financial accounting transcations are recorded for a definite period.

2. It is an internal reporting system for an organisations's own management for decision making whereas, it is more attached with reporting the results and position of business to persons and authorities.
3. It is concerned with short term planning and reporting period is much better than financial accounting.
4. Items of costs are analysed, classified in order to ascertain the cost per unit of product or service, but in financial accounting the items of costs are expressed in totals.
5. It is use with both monetary and notional items, but in financial accounting only monetary information is used.
6. It gives more importance to control aspect whereas, financial accounting does not give importance to control aspect.
7. Cost accounting is concerned with the ascertainment, allocation, distribution and accounting aspects of costs but financial accounting is concerned with determination of overall performance and position of the enterprise.
8. Cost accounting system can be installed with proper financial accounting system but financial accounting system can be installed without proper cost accounting system.
9. It needs reconciliation of its profit with that of financial records to findout correct profit, but financial accounting does not need any such reconciliation.
10. Cost accounting is not obligatory but financial accounting is obligatory as required by companies Act, Income Tax Act etc..
11. Cost accounting deals with estimates also but in financial accounting there is no room for estimates.

7.5 Cost Accounting vs. Management Accounting

1. Cost Accounting serves as a base to which the tools and techniques of management accounting can be applied to make it more purposeful, the management accounting data is derived from financial and cost accounts.
2. The scope of cost accounting is narrower than management accounting, but scope of management accounting is broder, because the management accountant places the data in a wider perspective than the cost accountant.
3. Cost Accounting is not dependent on management accounting but management accounting can not be installed without proper cost accounting system.
4. Cost accounting emphasizes collection, analysis, interpretation and presentation of cost data, the main thrust in management accounting is towards corporate planning and strategy effective and meaning ful.
5. Cost accounting is concerned with assisting in management function and does not provide for evaluation and performance of management but management accounting is concerned with evaluation and performance of management.
6. Cost accounting is mostly historical in its approach but management accounting is futuristic in its approach.
7. Cost accouting deals with collection, classification and analysis of cost data whereas, management accounting deals with various divisions, departments of the business and report about profitability and performance of each of them.

7.6 Advantages of Cost Accounting

A good cost accounting system serves the needs of a large section viz:

- **To Management :**

1. It helps in identifying unprofitable activities and losses.
2. It is useful for identifying exact causes for decrease or increase in profit or loss of the business.
3. It provides data to the management, which are helpful for them to take business decisions.
4. It plays an important role to assist the management in price fixing.
5. It enables the management to make inter-firm comparison or intra-firm comparison.
6. Cost comparison help in cost control.
7. It is helpful for cost reduction and also provides information for value analysis and for other efforts.
8. It points out deviation in pre-determined cost and actual cost, thus suitable action may be taken to eliminate such deviation in future.

- **To Employees :**

1. Cost accounting provides information to distinguish between efficient and inefficient workers. Through this efficiency can be recognised and rewarded.
2. Cost accounting provides a system for sound wages policy, it aids the management in devising suitable wage policy.
3. Cost accounting provides the information with regard to productivity, it helps the management to serve it with workers in the form of bonus.

- **To Lenders :**

1. It gives correct picture of business, so lenders can judge the soundness.
2. Cost information is helpful for them, while taking decisions of merger, takeover etc..

- **To Government:**

1. Cost information can help the government for the preparation of the national plan.
2. Cost accounting is useful to government in so many ways like making the policies for taxation, export, import and subsidy decisions.

- **To Society :**

1. Cost accounting facilitates customers to get goods at fair prices and of better quality.
2. Cost accounting paves a vital role in development and prosperity of industries, hence it is beneficial to all section of society.

7.7 Limitations of Cost Accounting

1. It does not give the outright solution, it gives only base for taking best decisions.
2. It is a time consuming system and also expensive.
3. There are different views for inclusion of an item to ascertain the cost.
4. Cost data varies with purpose. Hence cost called for certain purpose will not be suitable for the other.

5. It is not exact science. It involves elements of judgement.
6. There are so many methods for apportionment and absorption of overheads, valuation of stock, segregation of fixed and semi-fixed cost, provision for depreciation etc. that may lead to cost difference.
7. There is no uniform procedure.

7.8 Types of Costing

The important types of costing systems are discussed below:

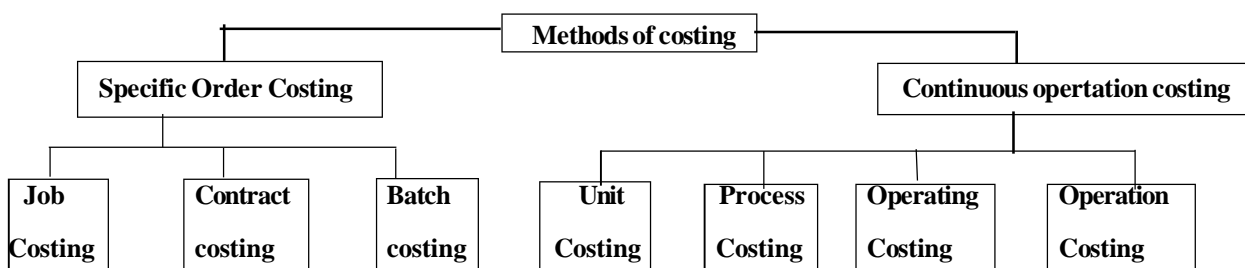
1. **Historical costing:** The cost actually incurred are recorded and then the costs are ascertained, it is useful for post mortem examination of actual costs incurred. These data are available at the end of the accounting period hence it is too late to use these data for control purpose.
2. **Absorption costing:** In this system also costs are charged either fixed or variable. It is allocated to cost units and total overheads are absorbed according to activity level. It is a traditional form of cost ascertainment. In this system costs are absorbed on the basis of the benefit received from these costs.
3. **Marginal costing:** Under this method, variable cost are charged to unit cost and fixed costs are treated as period costs and it is deducted from the contribution (excess of sales over variable cost) to arrive the profit. The techniques is widely used for managerial decisions.
4. **Standard costing:** The cost which is computed in advance on basis of factors affecting costs. It provides base for control through variance analysis. It is helpful for management to take corrective action.
5. **Uniform costing:** A common method of costing is used by similar units of the same industry known as uniform costing. It facilitates valid comparisons between the same type of units and help in elimination of inefficiencies.
6. **Life-Cycle costing:** It is a system, which accumulates costs for all activities occurring over the entire life cycle of a product. It includes all costs either of capital nature or of revenue nature.
7. **Activity Based costing:** Cost of indirect activities are charged to cost units on the basis of benefits received from such activity. Cost of each activity is ascertained separately.

Activity- 7.1

For the comparison of cost between the same type of units, which type of costing should be adopted by similar concerns?

7.9 Methods of Costing

There are a number of costing methods of cost ascertainment depending upon the nature of business and the type of its products. The methods are given in the chart below :



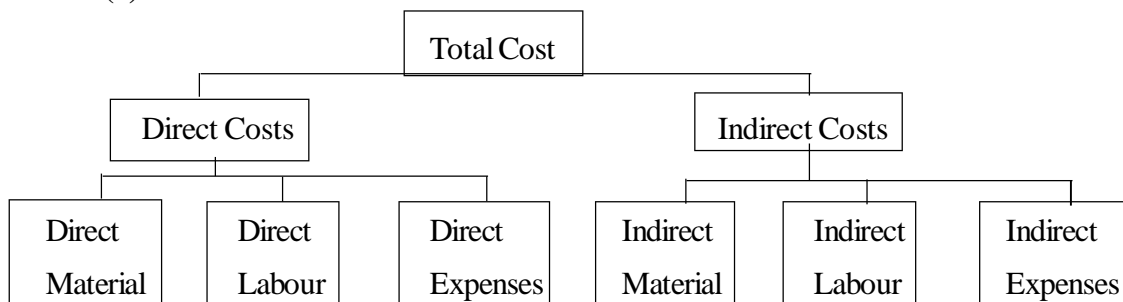
1. **Job costing** It refers to a system of costing in which costs are ascertained in terms of special requirement, which is not comparable with each other. It is a method which is used in such industries, where production is carried on demand or order of a customer like a printing press, interior decorator, repair shop and automobile garage.
2. **Contract costing** Contract costing is “that form of specific order costing which is applied where work is undertaken to customer’s special requirement and each order is of long term duration. It is an agreement between two parties to complete a special nature of job at the fixed price known as “control Price”. This method is suitable for industries engaged in the construction of bridges, buildings on a contract basis.
3. **Batch costing** Where a customer orders certain quantity of identical items or a production which can be completed in a specific quantum of production. The cost can be ascertained on the basis of units produced in a batch. It is used in readymade garments, toys, bakery items etc.
4. **Unit costing** It is applicable to all such industries where there is a production of single article on a large scale by a continuous process of manufacture. This method is adopted in industries like cement, steel, breweries etc. It is also called as single or output costing:
5. **Process costing** Where material is passed through various operations to obtain a final product, in this case, it is desired to calculate the cost of each operation separately for a given period of time. It is applicable to industries like chemicals, textiles, paper, oil manufacturing etc.
6. **Operating costing** Cost of services rendered by a unit is calculated and cost per unit of the service is arrived at. This method is used by the undertakers who render services like transportation, electricity companies. This systems is also known as service costing.
7. **Operation costing** A manufacturing process may sometimes be sub-divided into a number of operations, each production process is considered as a separate cost centre. It is applicable to such industries where there is mass and repetitive production conducted through different operations.
8. **Composite costing** In this method, two or more methods of costing are used to determine the cost of a product. Total cost can be ascertained by computing costs through job/process costing and then aggregating costs with the use of output costing. It is applicable to motor cars, computers industries.

7.10 Cost, Expenses and Losses

Cost refers to the amount of expenditure incurred for an economic benefit. It includes deferred as well as expired cost. **Expenses** includes expired cost with a matching economic benefit. **Loss** refers to the amount which has been spent without any matching economic benefit.

7.11 Classification of Costs

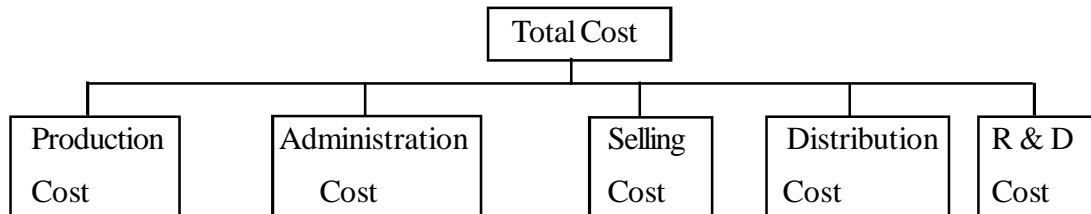
It is a process of grouping costs according to their common characteristics. The different bases are as follows: - (a)**Element-wise classification:**



Direct costs are those which can be identified easily with a costing unit or cost centre. These costs can be directly allocated to a particular cost unit. These costs are also called as traceable costs.

Indirect costs can be apportioned to cost centres or cost units but it can not be allocated directly, hence these are called as “common costs” or “untraceable costs.”

(b) Functional Classification :



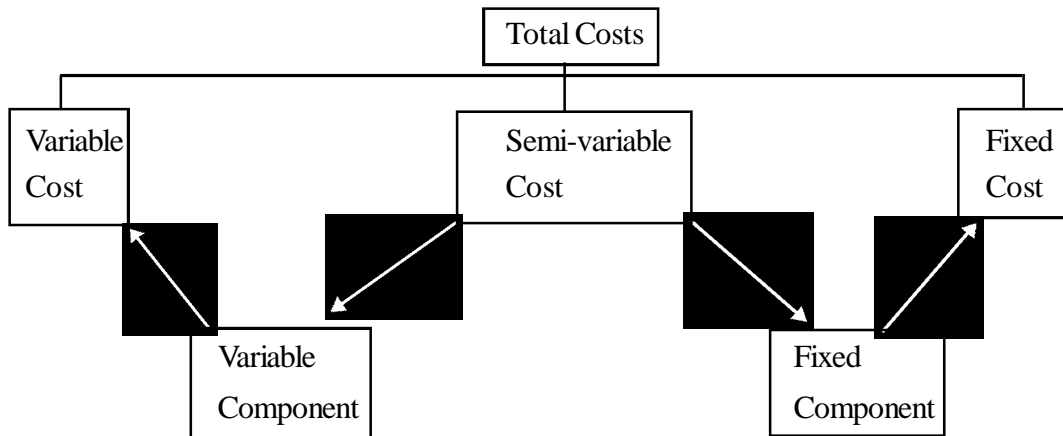
The production cost includes all direct costs plus indirect costs related to manufacturing operations. The Administration cost is the sum of these costs associated with administrative functions. Selling cost is cost of marketing a produce or service like advertisement. Distribution cost included the costs which are incurred on goods or service made available to the customers. Research cost includes cost of searching new ideas/products/process, improvement of existing products. Development cost is the cost which is incurred for putting the research results on commercial basis.

(c) Classification of Costs for Decision Making:

- (i) Product and Periods costs** It is aggregate of costs that are associated with a unit of product. It includes an element of overheads depending upon the types of costing system in force like absorption or direct. Period costs are the costs which are associated with a time period rather than level of activity. These are in the nature of fixed costs.
- (ii) Explicit and Implicit costs** Explicit costs involves payment to other parties, hence it is called as “out of pocket cost. Implicit costs are the costs which do not require current cash payments like depreciation. It is also called as ‘imputed’ or ‘book cost’ or economic costs”.
- (iii) Sunk costs and Pre-determined cost** Sunk cost is a past cost. Investment in plant, is a sunk costs, which will not relevant for decisions. Pre-production costs are incurred at the time of trial run production. These are generally treated as deferred revenue expenditure, except to the extent of capitalised portion of such costs.
- (iv) Opportunity cost** It is a value of benefit forgone of an alternative course of action. Notional rent of own-building is an example. It is used in decision making but not entered into books of accounts.
- (v) Shut down cost** It refers to the minimum fixed costs which are incurred even at the temporary closure of dept., division. It is irrelevant for decision making.
- (vi) Conversion cost** The cost which is attributable for converting raw material into finished product. Hence, it is production cost excluding direct material cost.
- (vii) Replacement cost** It is the cost of replacing existing capital asset with new one, which is usually identical.

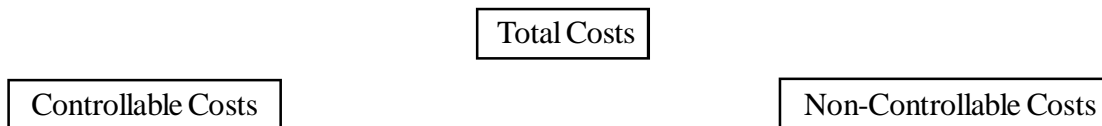
Activity - 7.2
 Depreciation is an example of cost, while rent is an example ofcost.

(D) Classification based on cost Behaviour :



Variable cost is a cost which varies in accordance with the level of activity within relevant range and within a given period of time. There is a linear relationship between volume and variable costs. These are constant per unit. The fixed cost is a cost which is unaffected by the changes in the level of activity during a given period of time and within relevant range. It has inverse relationship between volume and fixed cost per unit. Semi-variable cost are neither perfectly variable nor absolutely fixed. These costs have neither linear or curvilinear relationship with output but it moves in steps with the changes in activity levels. Such classification affects C.V.P. analysis, direct costing, flexible budgeting and decision making. There are five methods of segregating semi variable costs : (a) Graphical method (b) High & Low-point method (c) Analytical method (d) Comparison by period or level of activity method (e) Least Square Method.

(E) Classification According to Controllability :



Controllable costs are the costs which can be controlled by the action of a specified person of an organisation. But uncontrollable costs can not be influenced by the action of a specified person of an organisation, such as price of raw material.

7.12 Codification of Costs

It is a system which assigns code numbers to each head, sub-head. It facilitates systematic and easy recording, accounting and summarization of cost data for ascertainment of costs. A good coding system should consist clear, unambiguous and distinctive codes in order to systemise the analysis of cost. **Methods of Codification of Costs :**

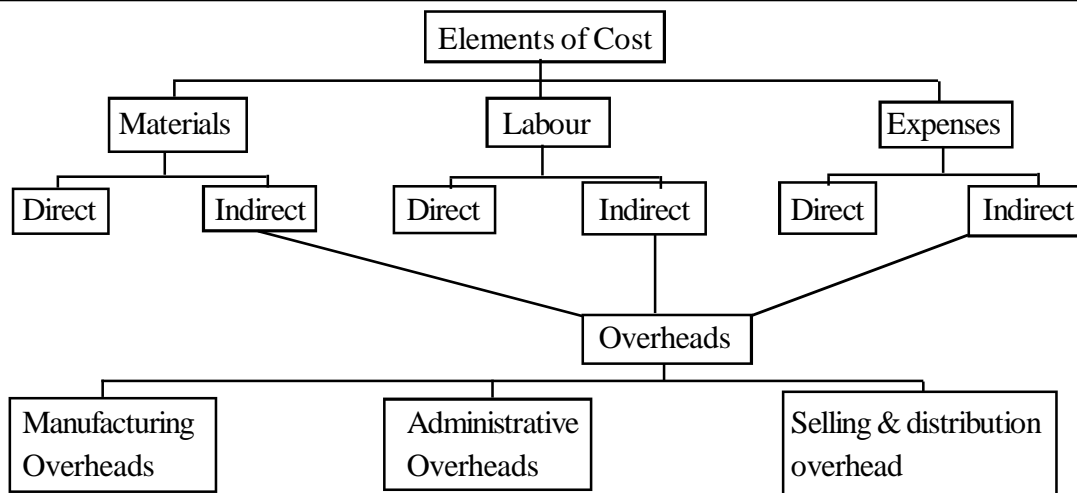
- (a) **Straight numbering method** It is a numerical coding system in which a separate number is given to each item of expenses.
- (b) **Decimal method** The numeric codes are allotted to various expenses classifying them into parts like :
 1. Administrative overhead
 - i Office rent and rates.
 - ii Office lighting
 - iii Postage & Telegram.

(c) **Number blocks :** Each major head of expenditure is given one block of numbers like as :

Depreciation	1 to 50
Salaries	51 to 100
Repairs & Maintenance	101 to 150

(d) **Numerical codes :** This system consists of nine digit code for each item. First two digits denotes the nature (variable/fixed), the next three digits indicate head of expenses (Salaries, Rent), the next two digits stand for analysis of expenses (office salaries, selling dept. salaries) and the last two digits indicate the relevant cost centre.

7.13 Elements of Cost



Materials may be defined as substances from which products are manufactured. It may be direct or indirect. The material which can be economically identified in the final product are called direct materials. However, such materials which are not economically feasible to identify that quantity or which is of very small value or is used in small quantity are called as indirect materials.

Labour may be defined as the human or mechanical effort by which materials are converted into final product. It may be direct and indirect. Labour cost which is economically identified or attributed wholly to final product is called direct labour cost. Labour costs which cannot be allocated but can be apportioned to or absorbed by cost unit or cost centre is called indirect labour cost.

Costs other than materials and labour cost are known as expenses. It may be direct or Indirect. Expenses which are specifically incurred for a particular product other than direct material and labour are called direct expenses. All the expenses which are other than direct expenses are known as indirect expenses.

Overheads is the aggregate of indirect material costs, indirect labour costs and indirect expenses. It may be classified into production (factory), administration (office) and selling and distribution overheads. Some example items included in above:

Direct Material	Direct Labour	Direct Expenses	Factory Overheads	office & Administration Overheads	Selling & Distribution Overheads
-Raw Materials -Parts and Components -Primary packing materials -Specific Purchases for a product	-Labour engaged in production -involved in direct inspection involved in specific product	-Cost of special patterns drawings -cost of patents -fees paid to consultant -cost of operating machine -Excise duty	-Consumable stores -Salaries of factory staff -Overtime bonus -Rent of factory premises -Power, fuel	-office Printing -Salary to office staff -Directors Salary -Legal charges -Office rent	-Salary of sales dept. -Traveling Exp. -Warehouse Charges -Carriage outwards -After sales service cost -Samples & free gifts.

Expenses excluded from cost :

The following expenses are excluded from costs :

Purely financial Incomes	Purely financial charges	Appropriation of profits	Abnormal Expenses & losses
-Interest on Deposits -Transfer fees received -Rent received -Dividend received -Commission, brokerage, discount received	-Capital losses -Penalties and fines -Interest on loan & debentures. interest -Loss on sales of assets -Cash discount	-Dividend Paid -Charities & donations -Appropriation to funds -Transfer to reserve -Amount written off - goodwill - Preliminary Exp. - Discount on issue of Debentures	-Abnormal wastage -Lost by theft -Lost by fire -Cost of abnormal idle time

Activity - 7.3

List out any three items, which are excluded from cost accounts:

7.14 Determination of Total Cost

Total costs of a product consists of various elements of cost. The logical process of determination of total cost can be done through following chart :

Statement of Total Cost

Direct Material Used		
Opening stock of Raw Material	-	
+ Purchases of Raw Material	-	
+ Carriage inwards	-	
- Closing Stock of Raw Material	-	
- Sale price of normal loss of material	-	-
Direct Labour cost		-
Direct Expenses		-
Prime Cost		-
Add: Works overheads		-
Works cost		-
Opening stock of work-in-progress		-
Less: Closing stock of work-in-progress		-
Less: Sale price of wastage (if not directly deducted from material cost)		-
Net works cost		-
Add: Office and Administration overheads		-
Add: office stock of finished goods		-
Less Closing stock of finished goods		-
Net cost of production		-
Add: Selling and distribution overheads		-
Total cost/cost of sales		-
Add: Profit		-
Sales		-

The above statement is prepared to provide the classification of costs in summarised form, to estimate the cost and to provide information for comparative study.

7.15 Summary

Cost accounting grew with the growth of each country with the advent of the industrial revolution and large sized industries. The amount of expenditure either actual or notional incurred to a specific article or activity is called cost. Costing is the technique and process of ascertaining costs. Cost accounting involves all accounting procedures relating to recording of all income and expenditure. It also involves preparation of reports for controlling the costs. Cost accountancy is used in a broader sense. It includes costing, cost accounting and it is concerned with the formulation of principles, methods, techniques to be applied for ascertaining costs. The purpose of cost accounting is to ascertain the cost, to fix the selling price and to control and reduce the costs. Cost accounting and financial accounting have distinct features. Cost accounting offers a number of advantages to management, employees, lenders, government and to society. Cost accounting have some limitations like expenses, unnecessary, unreliable etc. There are two major methods of costing viz. Specific order costing, Process costing. There are different types of costing which are adopted for controlling costs and for making managerial decisions. Cost can be ascertained by grouping of elements of cost.

7.16 Key Words

- **Cost Object:** Anything for which a separate measurement of cost is desired like a customer, a product, a service etc.
- **Cost Centre:** A location, person or an item for which cost may be ascertained. It is of two types one a personal cost centre which consists of a person or group of persons and an impersonal cost centre which consists of a location or an item.
- **Production Cost Centre:** Where raw material is handled for conversion into finished product.
- **Service Cost Centre:** A centre where a cost of ancillary unit to a production such as : power house, plant maintenance centre etc.
- **Cost Unit:** A product, service or time (or combination of these) in relation to which costs may be ascertained or expressed. Cost unit are usually the units of physical measurement like number, weight, area, volume, length, time and value.
- **Profit Centres:** The centres which have the responsibility of generating and maximising profits.
- **Investment Centres:** The centres which are concerned with earning an adequate return on investment.
- **Responsibility Centre:** It is an activity centre of a business organisation for the purpose of control. It can be classified into three categories : Cost centres, Profit centres and Investment centres.
- **Imputed Costs:** It is a hypothetical cost, which is neither spent nor accounted in the books, Examples: Interest on capital.
- **Discretionary Cost:** Which may be reduced or partially dropped according to the policy of management and need of hour. These are advertisement, research and development expenses.
- **Differential Cost:** It represents changes in total cost due to change in activity level it may be incremental or decremental.

7.17 Self Assessment Test

1. Define cost, costing, cost accounting and cost Accountancy?
2. What are the main objectives of cost accounting?
3. What are benefits of cost accounting to all segments?
4. What are the different types of cost centres?
5. What are the limitations of cost accounting?
6. What are the different methods of costing?
7. What are the different types of costing?
8. Distinguish cost and management accounting.
9. "Reducing costs is an imperative of an emerging competitive environment." Discuss.
10. "Cost can be classified in a variety of ways." Explain and discuss the statement giving examples.
11. State how you would allocate the following items under their headings of (a) factory overhead (b) office overhead (c) selling and distribution overhead.
 - (i) Repairs and maintenance of factory.

- (ii) Directors fees
- (iii) Delivery van expenses
- (iv) Depreciation of plant and machinery.
- (v) Depreciation of office furniture.
- (vi) Carriage outward.

7.18 Reference Books

Saxena and Vasishtha, *Essentials of Cost Accounting*

Arora M.N., *Cost Accounting*

Ravi M. Kishore, *Cost Accounting*

Unit - 8 Marginal Costing

Unit Structure

- 8.0 Objectives
- 8.1 Introduction
- 8.2 Marginal Cost and Marginal Costing
- 8.3 Advantages and Disadvantages of Marginal Cost
- 8.4 Break Even Analysis
- 8.5 Profit – Volume Ratio
- 8.6 Break Even Point
- 8.7 Sales and Profit Level
- 8.8 Margin of Safety
- 8.9 Marginal Costing - A Management Tool for Decision Making
- 8.10 Summary
- 8.11 Key Words
- 8.12 Self-Assessment Test
- 8.13 Reference Books

8.0 Objectives

The main objectives of this unit are to make you familiar with-

- The concept of Marginal Costing
- Profit-Volume Ratio, Break-Even Analysis, relationship between Sales & Profit level.
- The benefits & limitations of Marginal Costing

8.1 Introduction

The cost elements are mainly material, labour & overhead which are further divided into variable, semi-variable & fixed. The cost of product is determined by total costing or marginal costing. In marginal costing only variable costs are considered. In calculating cost of product & fixed costs are charged against the revenue of the period. In Marginal Costing we will consider only variable cost which changes in direct proportion to the change in output.

8.2 Marginal Cost and Marginal Costing

In simple words "Marginal Cost" means the additional cost for producing additional unit. The costing terminology of I.C.W.A. defines Marginal Cost as "the prime cost plus variable overhead". i.e., the total cost less fixed overhead. It is the amount at any given volume of output by which aggregate costs are changed if the volume of output is increased or decreased. Here unit means an order or a batch or articles or a single unit.

$$\text{Marginal Cost per unit} = \frac{\text{Increase (decrease) in total cost}}{\text{Increase (decrease) in total quantity}}$$

Eg : If production of 1000 units of an article requires material of Rs. 12000 and labour Rs. 8000 or, total cost is Rs. 20,000 and if production cost of 1001 units is Rs. 22000 then marginal cost is (Rs. 22000-20000) 2000.

Marginal Costing is defined as a technique of determining marginal cost (amount of change in aggregate cost due to an increase of one unit) by differentiating between fixed & variable costs. It is a technique concerned with the effect on profit when the volume or type of output changes. In Marginal Costing total cost is divided into fixed & variable. Semi variable cost is also divided into fixed & variable cost. The fixed cost remains the same. Marginal Cost is equal to the increase in total variable, because within existing production capacity, an increase in variable one unit of production will cause an increase in variable costs only. The stock of work-in-progress & finished goods are valued at Marginal Cost. The revenue generated from the excess of sales over variable costs is called contribution. Fixed cost is period cost and variable cost is product cost.

$$\text{Total Sales} - \text{Variable Cost} = \text{Contribution} [S - VC = C]$$

$$\text{Contribution} - \text{Fixed Cost} = \text{Profit} [C - FC = P]$$

Illustration - 1

Find out the amount of profit earned during the year using marginal costing technique from the following particulars with total fixed cost of Rs 160000.

Product	Output	Selling Price (Per unit)	Variable Cost (per unit)
P	20000	Rs. 10	Rs. 6
Q	40000	Rs. 10	Rs. 7.5
R	120000	Rs. 5	Rs. 4.5

Solution:

Marginal Costing Statement

Particulars	P	Q	R	Total
Units	20000	40000	120000	180000
	Rs.	Rs.	Rs.	Rs.
Sales Revenue	200000	400000	600000	1200000
Marginal Cost	120000	300000	540000	960000
Contribution	80000	100000	60000	240000
Fixed Cost	-	-	-	160000
Profit				80000

8.3 Advantages and Disadvantages of Marginal Costing

Marginal Costing is a useful tool to management in taking various policy decisions profit planning & cost control. The following are the main advantages -

1. Marginal Costing is helpful in cost control as it classifies the cost into fixed & variable costs, management can give more emphasis on control of variable cost, fixed cost is controlled to a limited extent only.
2. Stock valuation in Marginal Cost is more realistic & uniform because work-in-progress & finished goods are valued only at variable costs. No fictitious profit can arise due to fixed cost being absorbed & capitalized in unsold stock.

3. Marginal Costing is helpful to management, through information available, in various management decisions like make or buy, product mix, add or drop selling price below cost utilization of spare capacity, etc.
4. Marginal Costing makes possible efficient sales planning and proper profit planning.
5. Marginal Costing is a simple technique as it does not involve complicates of absorption, allocate, apportionment.

Marginal Costing suffers from the following limitations -

- (i) The accuracy of Marginal costing depends upon correct segregation of fixed & variable costs. But such segregation of cost is not possible in some cases.
- (ii) Non-consideration of fixed cost may be dangerous, or the stock is undervalued and pricing of product may be inappropriate.
- (iii) Marginal costing is not suitable for all industries like capital intensive industries, contract, shipping etc.
- (iv) The assumption of Marginal costing i.e. same Marginal cost per unit is partly true because Marginal cost per unit is influenced by trade discount of bulk purchase, scarcity of men & material, etc.

8.4 Break - Even Analysis

The analysis of cost behavior is required for planning, control & decision making which means analysis of variability of each cost element in relation to the level of output. The total variable cost (Product cost) like direct material, direct labour, selling commission, etc, varies in direct proportion to the volume of output but per unit variable cost remains the same. The total fixed costs (period cost) like rent, insurance, salary, etc remain the same irrespective of the level of output but per unit fixed cost goes on decreasing with the increasing level of output. The semi-variable cost like power, fuel is also divided into variable & fixed.

The cost and level of production changes due or many reasons like scarcity men & material, introduction of new technology, new product, boom & recession, demand etc, consequently profit changes. The management with the help of study of cost-volume-profit relationship knows the effect of such changes on profit. Such study is known as "break-even analysis".

Break-even Analysis involves -

- | | |
|----------------------|-------------------------|
| (a) Contribution | (b) Profit/volume Ratio |
| (c) Break Even Point | (d) Margin of Safety |

Break even analysis is based on following assumptions:

1. All cost can be segregated into two parts i.e., fixed and variable.
2. Fixed costs remain constant at various levels of activity.
3. Variable costs change directly with production. It means variable cost per unit.
4. Selling price per unit remains constant at various levels of activity.
5. Technological methods and efficiency of men and machines will not be changed.
6. No inventory exists in the beginning or at the end of the period.
7. Either there is only one product or if several products are being produced and sold then sales mix remains constant.

8. Break even analysis assumes linear relationship in total costs and total revenues.
9. Break even analysis ignores the capital employed in the business.

Contribution: The difference between Marginal cost of sales & sales value is known as contribution (Gross Margin). The portion of contribution left after absorbing fixed costs is Net Profit. The study of contribution is helpful in deciding the best possible product process, optimum product mix, accepting or rejecting new order received.

$$\text{Contribution} = \text{Sales} - \text{Variable (Marginal) Cost} \quad [C = S - VC]$$

$$\text{Sales} - \text{Variable Cost} = \text{Fixed Cost} + \text{Profit} \quad [S - VC = F + P]$$

8.5 Profit Volume Ratio (P/V Ratio)

The relationship between contribution & sales is expressed by profit volume ratio. It is the profit earning rate. It depicts the soundness of the company's product. Its study is used to determine break even for a product or products, to know how the profit changes if changes are made in cost, profit, volume or any combination of these. There exist direct relationship between profit volume ratio & contribution. The P/V Ratio can be improved by improving contribution and contribution can be improved by increasing selling price, decreasing variable cost.

$$\text{Profit Volume Ratio (P/V)} = \frac{\text{Contribution} \times 100}{\text{Sales}} \left[\frac{C}{S} \times 100 \right]$$

$$\left(\frac{F+P}{S} \times 100 \text{ or, } \frac{S-V}{S} \times 100 \right)$$

When sales & Profit of two years is Given-

$$\text{P/V Ratio} = \frac{\text{Change in profit}}{\text{Change in sales}} \times 100$$

Estimation of sales value with contribution & P/V Ratio

$$\text{Sales value} = \frac{\text{Fixed Cost} + \text{Desired Profit}}{\text{P/V Ratio}}$$

Illustration: 2

Mahalaxmi Ltd. produces three products P, Q, R. The cost data is as follows:

Fixed cost	Rs. 25000		
	P	Q	R
	Rs.	Rs.	Rs.
Sales	50,000	25,000	30,000
Variable Cost	20,000	20,000	18,000

You are required to:

- (1) Calculate the Profit Volume ratio of each product

Solution:

	P	Q	R	Total
	Rs	Rs.	Rs.	Rs.
Sales	50,000	25,000	30,000	1,05,000
Marginal Costs	20,000	20,000	18,000	58,000
Contribution	30,000	5,000	12,000	47,000
Profit Volume ratio	3/5 or 0.60	5/25 or 0.20	12/30 or 0.40	47/105 or 0.45

The sequence should be P, R, and Q (Descending order of P/V Ratio)

Product	Sales	Variable cost	Contribution	Cumulative contribution	Fixed Cost	Cumulative profit	Cumulative Sales
P	50,000	20,000	30,000	30,000	25,000	5,000	5,000
Q	30,000	18,000	12,000	42,000	25,000	17,000	80,000
R	25,000	20,000	5,000	47,000	25,000	22,000	1,05,000

● Profit Volume Graph

For preparing the profit volume graph, following steps are involved:

- Sales are depicted on x-axis and profit and loss on y-axis.
- X-axis divides the graph into two parts. The lower area of the x-axis depicts loss and upper area depicts the profit. When sales is zero, loss is equal to fixed cost.
- At a particular level of sales volume, the profit is depicted on y-axis. Both the points are joined by a straight line called profit line.
- The point where profit line intersects the x-axis is called the break even point.
- The angle between sales line and profit line is called angle of incidence.

Illustration: 3

Construct profit volume graph with the help of the following data:

ABC Ltd. reports the following results on 31st March 2010:

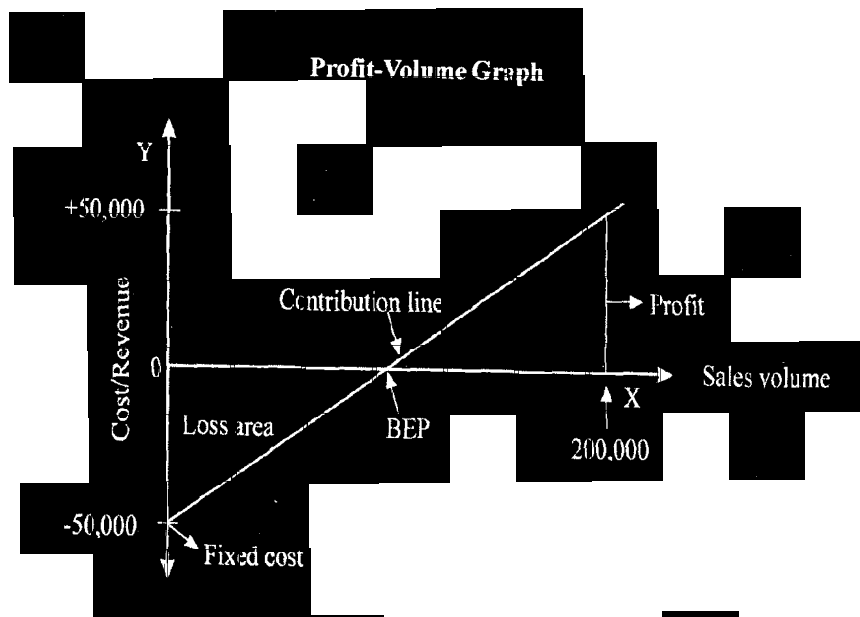
Sales @ Rs. 3 each	Rs. 3,00,000/-
Variable Cost Rs. 2 each	Rs. 2,00,000/-
Fixed Cost	Rs. 50,000/-

Construct the P/V chart.

Solution:

$$\text{P/V Ratio} = \frac{\text{Contribution}}{\text{Sales}}$$

$$\begin{aligned} \text{Contribution} &= \text{Sales} - \text{Variable Cost} \\ &= \text{Rs. } 300000 - \text{Rs. } 200000 \\ &= \text{Rs. } 100000 \end{aligned}$$



On X-axis, OX represents sales volume, on Y-axis OY represents profit while OY' loss, OFC represents fixed cost. The line FCP represents fixed cost and profit as well as total contribution. BE is the break-even point. The area BEX represents margin of safety while XBEP profit area. PBEX is the angle of incidence.

8.6 Break Even Point

Break Even Point is point of no profit no loss. Here contribution is equal to fixed cost. If is the point (volume) of output where total cost is exactly equal to revenue. It is the point after which profit begins. According to Charles T. Harngren, "The break-even point is the point of activity (sales volume) where total revenue and total expenses are equal, it is the point of zero profit and zero loss". Break-Even Point' is affected by increase and decrease in variable expenses, selling price or fixed cost.

8.6.1 Calculation of Break Even Point

$$\text{B E P (in units)} = \frac{\text{Fixed Cost}}{\text{Contribution per unit}}$$

$$\text{B E P (in value)} = \frac{\text{Fixed Cost}}{\text{P \ V Ratio}} \times 100$$

$$\text{BEP (in terms of sales capacity) (\%)} = \frac{\text{BE Sales}}{\text{Sales 100\% capacity}} \times 100$$

$$\text{BEP (Sales in Rupees)} = \frac{\text{Fixed Cost}}{\text{Contribution Ratio}} \left(\text{contribution ratio} = \frac{\text{Contribution}}{\text{Sales}} \right)$$

$$\text{Break Even Sales} = \text{Total Variable Cost} + \text{Total Fixed Cost}$$

Illustration: 4

The ratio of the variable costs to sales is 70 percent. The break even point occurs at 60 percent of the capacity. Find the break even point sales when fixed costs are Rs. 90000. Also compute profit as 75% of the capacity sales.

Solution:

As the variable cost to sales ratio = 70%

$$\begin{aligned} \text{P/V ratio or contribution ratio} &= 1 - \frac{\text{VC}}{\text{Sales}} = 1 - 0.70 \\ &= 0.30 \end{aligned}$$

$$\begin{aligned} \text{BEP (In value)} &= \frac{\text{Fixed Cost}}{\text{P/V Ratio}} = \frac{\text{Rs. 90000}}{.30} \\ &= \text{Rs. 300000} \end{aligned}$$

BEP occurs at 60 percent of the capacity utilization

Capacity Utilization	Sales
60%	Rs. 300000
75%	

We can apply unitary method or proportion method.

$$X = \frac{\text{Rs. 300000} \times 75}{60} = \text{RS. 375000}$$

Now we can compute, contribution earned when sales is Rs. 375000 Sales multiplied by P/V ratio gives the contribution.

$$\begin{aligned} \text{Contribution} &= \text{Sales} \times \text{P/V Ratio} \\ &= \text{Rs. 375000} \times 30\% \\ &= \text{Rs. 112500} \\ \text{Profit} &= \text{Contribution} - \text{Fixed Cost} \\ &= \text{Rs. 112500} - \text{Rs. 90000} \\ &= \text{Rs. 22,500} \end{aligned}$$

Activity

If Selling prices is Rs. 30 per unit, variable cost Rs. 18 per unit fixed cost Rs. 36000.
Calculate sales units at BEP.

Illustration: 5

Ummaid Ltd. is manufacturing and selling four types of products, A,B,C,D. The sales mix and variable costs are as follows:

Product	Sales per month	Variable Cost Ratio
A	1,00,000	50%
B	75,000	50%
C	50,000	75%
D	1,25,000	40%

The fixed costs are Rs. 75000 per month. Calculate break even point.

Solution:

Particular	A	B	C	D	TOTAL
Sales (Rs.)	1,00,000	75,000	50,000	1,25,000	3,50,000
Variable Cost (Rs.)	50,000	37,500	37,500	50,000	1,75,000
Contribution (Rs.)	50,000	37,500	12,500	75,000	1,75,000
Fixed Cost (Rs.)					75,000
Profit (Rs.)					1,00,000

$$P/V \text{ Ratio} = \frac{\text{Total Contribution}}{\text{Total Sales}} = \frac{\text{Rs. } 1,75,000}{\text{Rs. } 3,50,000} = 0.50 \text{ (i.e., 50\%)}$$

$$\text{Break Even Point (in Value)} = \frac{\text{Rs. } 75,000}{0.50} = \text{Rs. } 1,50,000$$

$$\text{Variable Cost Ratio} = \frac{\text{Variable Costs}}{\text{Total Costs}} = \frac{\text{Rs. } 1,75,000}{\text{Rs. } 3,50,000} = 0.50 \text{ (i.e., 50\%)}$$

$$\text{BEP (in Value)} = \frac{\text{Fixed Costs}}{1 - \frac{\text{Variable cost}}{\text{Total Sales}}} = \frac{\text{Rs. } 75,000}{1 - 0.50} = \text{Rs. } 1,50,000$$

8.6.2 Graphical Presentation of BEP

The break even point can also be shown graphically, the BEP chart shows the relationships between cost, volume and profit at various levels of output. Fixed cost, variable costs and sales revenues are shown on Y-axis and volume of output on X-axis. The break even point is that point at which the total cost line and total sales line intersect each other. This point represents "no profit, no loss".

The following steps are involved in construction of break even chart:

- Sales volume is plotted on X-axis. Sales volume may be expressed in terms of value (rupee), units of percentage of capacity.
- Cost and Revenue are depicted in Y-axis. Fixed costs remains constant irrespective to the sales volume. Hence it is parallel to the X-axis. Variable cost starts from (0,0) because no sales volume, no variable cost and as the volume increases variable cost also increases. When there is a parallel line of variable cost drawn from the fixed cost line in Y-axis, it depicts the total cost line. The sales revenue curve also starts from (0,0)
- The point of intersection of sales revenue line and total cost line depicts break even point.
- The area to the left side of break even point depicts loss zone as cost curve is at a higher level and sale revenue line is at a lower level. The area to the right hand side of break even point is called profit zone as sale revenue line lies at a higher level than the total cost line.
- The angle formed by the intersection of sale value line and total cost line is known as angle of incidence. Larger the angle, lower is the break even point and vice versa.

Illustration 6

Let us draw a break even chart with the help of data given below at different production levels of 0, 80,000, 90,000, 1,00,000, 1,10,000, and 1,20,000 units.

Sale Price = Rs. 3 per units

Variable Cost = Rs. 2 per units

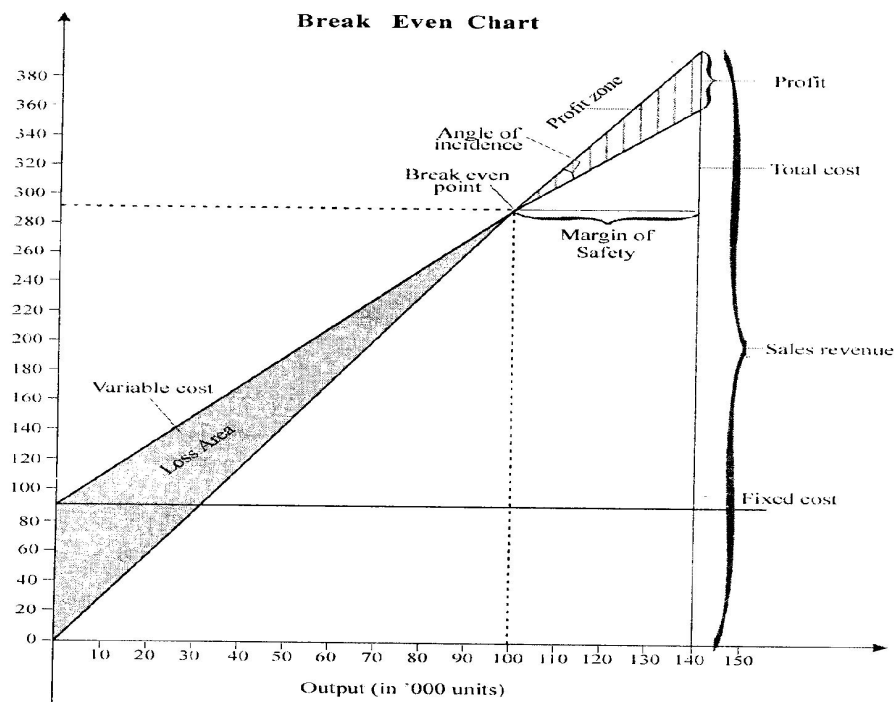
Fixed Cost = Rs. 90000

Solution

The costs and profits and different levels of output are computed as follows:

Output	Variable cost Rs.	Fixed cost Rs.	Total cost Rs.	Sales Rev. Rs.	Profit Rs.
0	0	90000	90000	0	-90000
80000	160000	90000	250000	240000	-10000
90000	180000	90000	270000	270000	0
100000	200000	90000	290000	300000	10000
110000	220000	90000	310000	330000	20000
120000	240000	90000	330000	360000	30000

The above data if presented on a graph, it appears as follows:



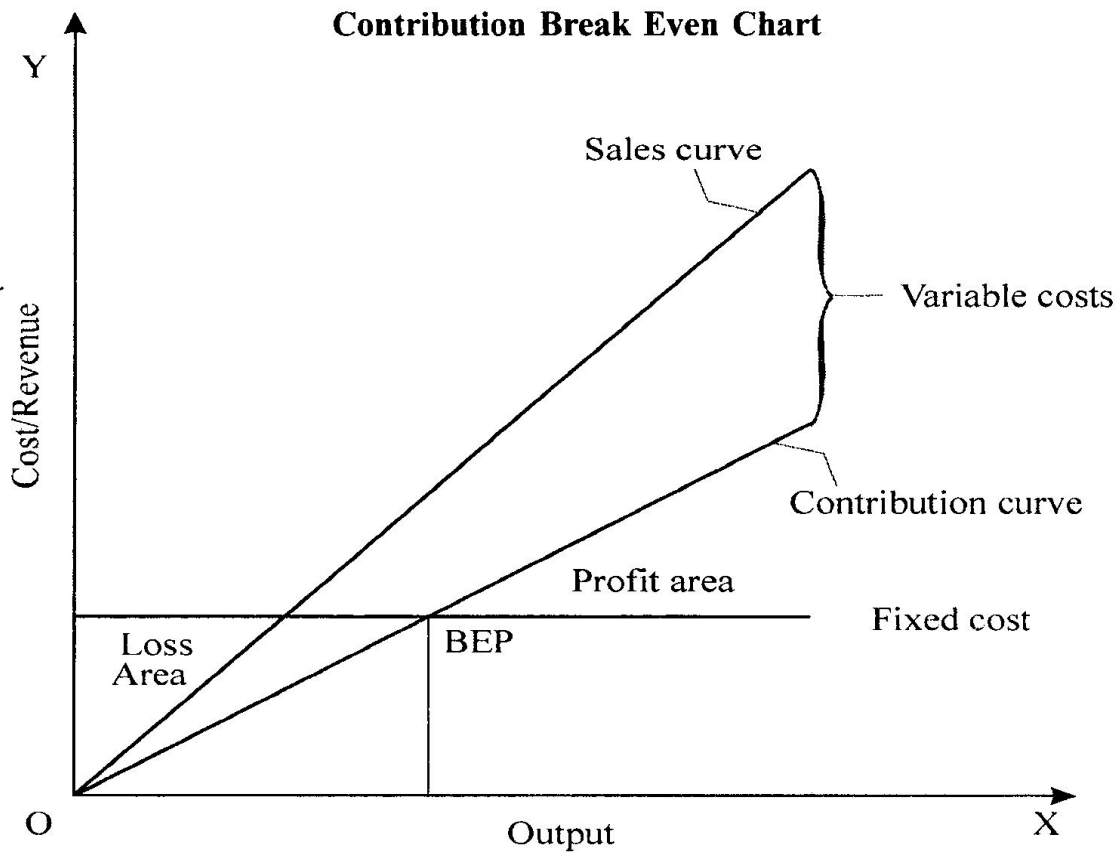
8.6.3 Contribution break even chart

Form this chart we can ascertain the contribution earned at different levels of activity. Under this method, total cost line is not drawn, instead the contribution line is drawn form the (0,0) point or origin. Intersection of cost line and sales line does not arise in this case as break even point occurs where contribution is equal to fixed cost. When contribution is greater than fixed cost it is profit and vice versa. The contribution break even chart shows the contribution at different levels of activity and any level of activity below the BEP will not cover the fixed cost.

Let us represent the data as given in illustration 6 by means of contribution break even chart.

Solution

Output	Variable cost Rs.	Fixed cost Rs.	Total cost Rs.	Sales Rev. Rs.	Profit Rs.
0	0	90000	90000	0	0
80000	160000	90000	250000	240000	80000
90000	180000	90000	270000	270000	90000
100000	200000	90000	290000	300000	100000
110000	220000	90000	310000	330000	110000
120000	240000	90000	330000	360000	120000



8.7 Sales and Profit Level

8.7.1 Calculation of Required Sales for Desired Profit

At BEP, profit is zero but for calculating the sales volume required to earn a desired profit, the profit value is put as desired profit.

$$\text{Sales} - \text{Variable cost} = \text{Contribution} = \text{Fixed Cost} + \text{Desired Profit}$$

$$\text{Required Sales Volume (in unit)} = \frac{\text{Fixed Cost} + \text{Desired Profit}}{\text{Contribution per unit}}$$

$$\text{Required Sales Volume (in value)} = \frac{(\text{Fixed cost} + \text{Desired Profit}) \text{ Sales}}{\text{Total Contribution}}$$

$$= \frac{\text{Fixed Cost} + \text{Desired Profit}}{1 - \text{Variable Cost} / \text{Sales}}$$

Illustration 7

A company producing a single product sells it at Rs. 30 per unit. Variable cost is Rs. 18 per unit and fixed cost is Rs. 120000 per annum. Calculate (a) Break even point, (b) Sales volume required to earn a profit of Rs. 180000 per annum.

Solution:

$$\begin{aligned} \text{Contribution} &= \text{SP} - \text{VC} = \text{Rs. } 30 - \text{Rs. } 18 \\ &= \text{Rs. } 12 \text{ per unit} \end{aligned}$$

$$\begin{aligned} \text{BEP (in units)} &= \frac{\text{Fixed Costs}}{\text{Contribution Per unit}} \\ &= \frac{\text{Rs. } 120000}{\text{Rs. } 12} = 10000 \text{ Units} \end{aligned}$$

$$\text{BEP (in value)} = \frac{\text{Fixed Costs}}{\text{P/V Ratio}}$$

$$\begin{aligned} \text{P/V Ratio} &= \frac{\text{Total Contribution}}{\text{Total Sales}} \\ &= \frac{\text{Rs. } 120000}{\text{Rs. } 300000} = 0.40 \end{aligned}$$

$$\begin{aligned} \text{BEP} &= \frac{\text{Rs. } 120000}{0.40} \\ &= \text{Rs. } 300000 \end{aligned}$$

$$\begin{aligned} \text{Sales volume required to Earn a desired profit (in units)} &= \frac{\text{Fixed Costs} + \text{Desired Profit}}{\text{Contribution per unit}} \\ &= \frac{\text{Rs. } 120000 + \text{Rs. } 180000}{\text{Rs. } 12} \\ &= \frac{\text{Rs. } 300000}{\text{Rs. } 12} = 25000 \text{ units} \end{aligned}$$

$$\begin{aligned} \text{Sales volume required to earn desired profit (in value)} &= \frac{\text{Fixed Costs} + \text{Desired Profit}}{\text{P/V Ratio}} \\ &= \frac{\text{Rs. } 120000 + \text{Rs. } 180000}{0.40} = \text{Rs. } 750000 \end{aligned}$$

8.7.2 Calculation of Sales Volume Required for Desired per unit Profit

$$\text{Required Sales Volume (in unit)} = \frac{\text{Fixed Cost}}{\text{Selling price} - (\text{Variable Cost} - \text{Desired profit})}$$

$$\text{Required Sales Volume (in unit)} = \frac{\text{Fixed Cost}}{1 - \frac{(\text{VC} + \text{Desired Profit Percentage on Sales})}{\text{Sales}}}$$

$$\text{Selling Price per unit} = \frac{\text{Fixed Cost}}{\text{Desired BEP}} + \text{Variable Cost}$$

Illustration 8

The cost information computed by the cost accountant is as follows:

Sales	=	1,00,000 units
Selling Price	=	Rs. 10 per unit
Variable cost or out of pocket- Cost	=	Rs. 6 per unit
Fixed Cost or Burden	=	Rs. 60,000 per annum

Compute the following:

- (a) Make a profit of Rs. 40000
- (b) Make a profit of Rs 2 per unit
- (c) Make a profit of 30% on sales

Solution

- (a) Sales volume required to earn a profit of Rs. 40000

In units

$$\begin{aligned} &= \frac{\text{Fixed Cost} + \text{Desired Profit}}{\text{Contribution per unit}} \\ &= \frac{\text{Rs. 60000} + \text{Rs. 40000}}{\text{Rs. 4}} = 25000 \text{ units} \end{aligned}$$

In value

$$\begin{aligned} &= \frac{\text{Fixed Costs} + \text{Desired Profit}}{\text{P/V Ratio}} \\ &= \frac{\text{Rs. 60000} + \text{Rs. 40000}}{0.40} = \text{Rs. 250000} \end{aligned}$$

- (b) Sales volume required to earn a profit of Rs. 2 per unit

In unit

$$= \frac{\text{Fixed Costs}}{\text{SP} - (\text{VC} + \text{P})}$$

$$\begin{aligned}
&= \frac{60000}{\text{Rs. } 10 - (\text{Rs. } 6 + \text{Rs. } 2)} = 30000 \text{ units} \\
&= \frac{\text{Fixed Costs}}{1 - (\text{VC} + \text{PD})/\text{SP}} \\
&= \frac{60000}{1 - (6 + 2) / 10} \\
&= \frac{60000}{2 / 10} = \text{Rs. } 300000
\end{aligned}$$

(c) Sales volume required to earn a profit of 30% on sales

In units

$$\begin{aligned}
&= \frac{\text{Fixed Cost}}{\text{SP} - (\text{VC} + 30\% \text{ of SP})} \\
&= \frac{\text{Rs. } 60000}{\text{Rs. } 10 - (6 + 3)} = 60000 \text{ units}
\end{aligned}$$

In Value

$$\begin{aligned}
&= \frac{\text{Fixed Cost}}{1 - (\text{VC} + 30\% \text{ of SP}) / \text{SP}} \\
&= \frac{60000}{1 - (6 + 3) / 10} = \text{Rs. } 600000
\end{aligned}$$

8.7.3 Calculation of Sales Required to Maintain Present Profit

(i) Sales volume required to meet proposed expenditure

$$\text{Additional Required Sales Volume (in unit)} = \frac{\text{Proposed Expenditure}}{\text{Contribution per unit}}$$

$$\text{Additional Required Sales Volume (in value)} = \frac{\text{Proposed Expenditure}}{\text{P/V Ratio}} \times 100$$

Illustration 9

Sales	10000 Units
Fixed Cost	Rs. 100000
Variable Cost	Rs. 200000

The selling price is Rs. 36 per unit. The company is spending Rs. 100000 on advertisement to promote its product. Find the sale volume required to earn the present profit.

Solution:

Extra sales volume required to meet the additional publicity expenditure of Rs. 100000 so as to maintain the present profit level is worked out as follows:

$$\text{Variable Cost Per Unit} = \frac{\text{Rs. 200000}}{10000 \text{ units}} = \text{Rs 20 per unit}$$

$$\text{Contribution Margin} = \text{Rs. 36} - \text{Rs. 20} = \text{Rs. 16 per unit}$$

$$\text{Additional sales required (in units)} = \frac{\text{Rs. 100000}}{\text{Rs. 16}} = 6250 \text{ units}$$

When a company sells 6250 units extra, then present level of profit will be maintained. For example, before spending money the company was earning a profit of Rs. 60000 which is as follows.

$$\begin{aligned} \text{Profit} &= \text{Contribution} - \text{Fixed Cost} \\ &= \text{Rs. 16} \times 10000 - \text{Rs. 100000} \\ &= \text{Rs. 160000} - \text{Rs. 100000} = \text{Rs. 60000} \end{aligned}$$

When sales volume increase to 16250 units (i.e. 10000 units + 6250) then profit will be

$$\begin{aligned} &= \text{Rs. 16} \times 16250 - \text{Rs. 200000 (F.C. 100000+ Advertisement Rs. 100000)} \\ &= \text{Rs. 260000} - \text{Rs. 200000} = \text{Rs. 60000} \end{aligned}$$

(ii) Sales volume required to offset price reduction

Illustration 10

Jodhana Ltd. manufactures and markets a product whose cost data is as follows:

Material Cost	=	Rs. 32 per unit
Conversion (Variable Cost)	=	Rs. 24 per unit
Dealer's Margin	=	Rs. 8 per unit (10% of selling price)
Selling Price	=	Rs. 80 per unit
Fixed Cost	=	Rs. 8 per unit
Present sales	=	Rs. 90000 units
Capacity Utilisation	=	60%

Management has the following two suggestions, which alternative is better so as to maintain the present profit level?

- Reduction is selling price by 5%
- Increasing the dealer's margin by 25% over the existing rates.

Solution

Total variable costs	=	Rs. 32 + Rs.24 + Rs. 8	= Rs. 64 per unit
Contribution per unit	=	Rs. 80 - Rs. 64	= Rs. 16 per unit
Present Profit Level	=	Rs. 16x 90000 - Rs. 1000000	= Rs. 440000

(a) Price Reduction By 5%

New selling price = (Rs. 80 - Rs. 4)	=	Rs. 76 per unit
New Dealer's Commission	=	10% of Rs. 76 = Rs. 7.60
New Contribution	=	Rs. 76 - (Rs. 32 + Rs. 24 + Rs. 7.60)
	=	Rs. 12.40 per unit

$$\text{Sales volume requires to earn a desired profit (in units) } = \frac{\text{FC + DP}}{\text{Contribution per unit}}$$

$$\text{Sales volume required (In unit) } = \frac{\text{Rs.1000000 + Rs. 440000}}{\text{Rs.12.40}}$$

$$= \frac{\text{Rs.1440000}}{\text{Rs.12.40}} = 116129 \text{ units}$$

(b) Increasing dealer's commission by 25%

$$\text{New Dealer's Commission} = \text{Rs. 8} + 25\% \text{ of Rs. 8} = \text{Rs 10 per unit}$$

$$\text{New Contribution} = \text{Rs. 80} - (\text{Rs.32} + \text{Rs.24} + \text{Rs.10}) = \text{Rs.14 per unit}$$

$$\text{Sales required (in units)} = \frac{\text{Rs.1000000}}{\text{Rs.14}} + \text{Rs. 440000}$$

$$= 102857 \text{ units}$$

In the second alternative, lesser units are required to be sold as compared to the first alternative. Contribution margin is also high in the second alternative. Hence the second alternative is better in comparison to the first.

(iii) New Sales volume or new selling price to offset the impact of change in variable cost and fixed costs

New selling price with the same volume and to earn the same profit when variable costs changes-

$$\text{New selling price} = \text{Old selling} + \text{New Variable Cost} - \text{Old Variable Cost}$$

$$\text{When fixed cost changes} = \text{Old Selling} + \frac{\text{New fixed cost} - \text{old fixed cost}}{\text{Volume of Product}}$$

Illustration 11

The cost of information supplied by the cost accountant is as follows:

Sales 10000 units @ Rs. 10 per unit	Rs. 100000
Variable cost Rs. 6 per unit	Rs. 60000
Contribution	Rs. 40000
Fixed Cost	Rs. 15000
Profit	Rs. 25000

Calculate the (a) new sales quantity and (b) new selling price to earn the same profit if

(i) Variable cost increase by Rs. 2 per unit

(ii) Fixed cost increase by Rs. 5000

(iii) Variable cost increase by Rs. 1 per unit and fixed cost reduces by Rs.5000

Solution

(i) Variable cost increases by Rs. 2

$$(a) \quad \text{New sales quantity required} = \frac{\text{F + DP}}{\text{SP} - \text{Vn}}$$

Where V_n is new variable cost

$$= \frac{\text{Rs. } 15000 + \text{Rs. } 25000}{\text{Rs. } 10 - \text{Rs. } 8} = \frac{\text{Rs. } 40000}{\text{Rs. } 2} = 20000 \text{ Units}$$

(b) New selling price

= Old selling price + change in variable cost per unit

$$= \text{Rs. } 10 + \text{Rs. } 2 = \text{Rs. } 12 \text{ per unit}$$

To earn the same amount of profit, the management should either increase the production to 20000 units or increase the selling price to Rs. 12 per unit.

(ii) Fixed cost increases by Rs. 5000

(a) Sales volume needed to earn a desired profit

$$= \frac{F_n + DP}{SP - VC}$$

F_n is the new fixed costs

$$= \frac{\text{Rs. } 20000 + \text{Rs. } 25000}{\text{Rs. } 10 - \text{Rs. } 6} = 11250 \text{ units}$$

(b) New Selling price

$$= \frac{SP + F_n - F_o}{Q}$$

SP is old selling price, F_n is new fixed cost and F_o is old fixed cost.

$$= 10 + \frac{\text{Rs. } 20000 - \text{Rs. } 15000}{10000 \text{ units}} = \text{Rs. } 10.50$$

To earn the same amount of profit i.e. Rs. 25000 the management should either increase the sales volume to 11250 units or increase the selling price to Rs. 10.50

(iii) Variable cost increases by Rs. 1 per unit and fixed cost reduces by Rs. 5000

(a) Sales volume required to earn a desired profit

$$= \frac{F_n + DP}{SP - V_n}$$

$$= \frac{\text{Rs. } 10000 + \text{Rs. } 25000}{\text{Rs. } 10 - \text{Rs. } 7} = \frac{\text{Rs. } 35000}{\text{Rs. } 3} = 11667 \text{ units}$$

(b) New selling price

$$= SP + \frac{(V_{Cn} - V_{CO})}{Q} + F_n - F_o$$

$$= \text{Rs. } 10 + \frac{\text{Rs. } 10000 - \text{Rs. } 15000}{10000 \text{ units}} + \text{Rs. } 7 - \text{Rs. } 6$$

$$= \text{Rs. } 10 - \text{Rs. } 0.50 + \text{Rs. } 1$$

$$= \text{Rs. } 10.50$$

To earn the same profit i.e. Rs. 25000 the management should either increase the sales to 11667 units or increase the selling price to Rs. 10.50

Illustration 12

The cost data of Kota Ltd. is as follows:

	Product A	Product B	Product C	Total Rs.
Sales (40:50:10) (Rs.)	80000	100000	20000	200000
Variable Costs (Rs.)	50000	60000	10000	120000
Contribution (Rs.)	30000	40000	10000	80000
Fixed (Rs.)	-	-	-	50000
Profit	-	-	-	30000

Calculate

- Break Even point, and
- Break even point if sales mix ratio is changed to 30:50:20

Solution

- Break Even point

When the company is producing multi products, then for computing break even equation in terms of value should be used.

$$\begin{aligned}
 \text{BEP (in value)} &= \frac{\text{Fixed Costs} \times \text{Total Sales}}{\text{Total sales} - \text{Variable costs}} \\
 &= \frac{\text{Rs. } 50000 \times \text{Rs. } 200000}{\text{Rs. } 200000 - \text{Rs. } 120000} \\
 &= \frac{\text{Rs. } 50000 \times \text{Rs. } 200000}{\text{Rs. } 80000} = \text{Rs. } 1250000
 \end{aligned}$$

- Change in sales mix ratio

New sales mix A:B:C = 30 : 50 : 20

Sales

$$A = \text{Rs. } 200000 \times \frac{30}{100} = \text{Rs. } 60000$$

$$B = \text{Rs. } 200000 \times \frac{50}{100} = \text{Rs. } 100000$$

$$C = \text{Rs. } 200000 \times \frac{20}{100} = \text{Rs. } 40000$$

Variable Cost Ratio (as variable cost per unit remains same)

$$A = \frac{\text{Rs. } 50000}{\text{Rs. } 80000} = \frac{5}{8}$$

$$B = \frac{\text{Rs. } 60000}{\text{Rs. } 100000} = \frac{6}{10}$$

$$C = \frac{\text{Rs. } 10000}{\text{Rs. } 20000} = \frac{1}{2}$$

	Product A	Product B	Product C	Total Rs.
Sales (Rs.)	60000	100000	40000	200000
Variable Costs (Rs.)	37500	60000	20000	117500
Contribution (Rs.)	22500	40000	20000	82500
Fixed (Rs.)	-	-	-	50000
Profit	-	-	-	32500

Break Even Point after change in sales mix:

$$= \frac{\text{Fixed Cost} \times \text{Sales}}{\text{Sales} - \text{Variable Costs}}$$

$$= \frac{\text{Rs. } 50000 \times \text{Rs. } 200000}{\text{Rs. } 200000 - \text{Rs. } 117500} \quad \frac{\text{Rs. } 50000 \times \text{Rs. } 200000}{\text{Rs. } 82500}$$

$$= \text{Rs. } 121212.12$$

8.8 Margin of Safety

The difference between actual sales and B E P sales is known as margin of safety. Higher the margin of safety higher the protection to the company. It indicates the sales volume below which the firm will suffer loss. There is a positive relation between margin of safety and soundness of the business.

$$\text{Margin of Safety (in unit)} = \frac{\text{Actual Sales} - \text{Break even Sales (in unit)}}{\text{Contribution per unit}}$$

$$\text{Margin of Safety (in value)} = \text{Actual Sales} - \text{Break Even Sales (in value)}$$

$$\text{Margin of Safety (in value)} = \frac{\text{Profit} \times 100}{\text{P/V Ratio}}$$

$$\text{Margin of Safety (in \%)} = \frac{\text{Actual Sales} - \text{Break Even Sales}}{\text{Actual Sales}} \times 100$$

Illustration 13

Sri Ram Ltd. has earned contribution of Rs. 2,00,000 and net profit of Rs. 1,50,000 on sales of Rs. 8,00,000 Calculate Margin of Safety if Break Even Sales is Rs. 2,00,000

Solution

$$\text{P/V Ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100 = \frac{200000}{800000} \times 100 = 25\%$$

$$\text{M/S (in value)} = \frac{\text{Profit}}{\text{P/V Ratio}} \times 100 = \frac{150000}{25} \times 100 = \text{Rs. } 600000$$

$$M/S(\text{in } \%) = \frac{\text{Actual Sales} - \text{B.E. Sales}}{\text{Actual Sales}} \times 100 = \frac{800000 - 200000}{800000} \times 100 = 75\%$$

Activity

If present sales is Rs. 300000, sales at BEP Rs. 240000, calculate margin of Safety in terms of percentage.

Illustration 14

From the following data prepare the marginal cost statement and find out (I) P/V Ratio (ii)

B E P (iii) M/S

Direct Material	Rs.	60,000
Direct Labour		48,000
Variable Factory Overhead		25 % of wages
Variable Administration Overhead		10 % of works cost
Fixed Expenses		48,000
Variable Selling Overhead		15 % of works cost
Sales 2,500 units @ Rs 80 per unit		

Marginal Cost Statement

	Rs.	Rs.
Saels 2500 units @ Rs. 80		200000
Less: Marginal cost:		
Direct Material	60000	
Direct Labour	48000	
	108000	
Prime cost		
Add: Works overhead (variable 25% of labor)	12000	
	120000	
Marginal Works cost		
Add: admistration overhead (variable 10% of w.c)	12000	
	132000	
Marginal Cost of Production		
Add: selling overheard (variable 15% of w.c.)	18000	
		150000
Total Marginal Cost		
Contribution		50000

$$(1) \quad P/v \text{ Ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100 = \frac{50000}{200000} \times 100 = 25\%$$

$$(2) \quad \text{BEP} = \frac{\text{Fixed Cost}}{\text{P/V Ratio}} \times 100 = \frac{48000}{25} \times 100 = 192000$$

$$(3) \quad M/s = \frac{\text{Profit}}{\text{P/V Ratio}} \times 100 = \frac{2000}{25} \times 100 = 8000$$

$$\text{Profit} = \text{C} - \text{FC} = \text{Rs. } 50000 - 48000 = \text{Rs. } 2000$$

Illustratin 15

Ashish Ltd., Multi Product company, furnishes the following data:

Particular	Period I	Period II
Sales (Rs.)	45000	50000
Total Cost (Rs.)	40000	43000

Assuming that there is no change in price and variable costs, fixed expenses are incurred equally in the two periods. Calculate the following;

- (i) Profit volume ratio.
- (ii) Fixed expenses
- (iii) Break even point
- (iv) Percentage M/S to sales in Period II
- (v) Sales required to earn profit = Rs. 10000
- (vi) Profit when sales is Rs. 80000.

Solution

Particular	Period I	Period II	Profit (Rs.)
Period II	50000	43000	70000
Period I	45000	40000	5000
Change	5000	3000	2000

(i) $P/V \text{ Ratio} = \frac{\text{Change in Profit}}{\text{Change in Sales}} = \frac{\text{Rs. 2000}}{\text{Rs. 5000}} = 0.40$

(ii) Fixed expenses

$$\begin{aligned} \text{Contribution} &= \text{Sales} \times P/V \text{ ratio} \\ \text{Period I Contribution} &= \text{Rs. } 50000 \times 0.40 = \text{Rs. } 20000 \\ \text{Contribution} &= \text{Fixed Cost} + \text{Profit} \\ \text{Rs. } 20000 &= \text{FC} + \text{Rs. } 7000 \\ \text{F C} &= \text{Rs. } + 13000 \\ \text{Period II Contribution} &= \text{Rs. } 45000 \times 0.40 = \text{Rs. } 18000 \\ \text{F C} &= \text{Contribution} - \text{Profit} \\ &= \text{Rs. } 18000 - \text{Rs. } 5000 = \text{Rs. } 13000 \end{aligned}$$

(iii) Break Even point = $\frac{\text{Fixed Costs}}{P/V \text{ Ratio}}$

BEP (in value) = $\frac{\text{Rs. } 13000}{0.40} = \text{Rs. } 32500$

(iv) Margin of Safety (M/S) = $\text{Actual Sales} - \text{BEP (in value)}$
 $= \text{Rs. } 50000 - \text{Rs. } 32500$
 $= \text{Rs. } 17500$

% of M/S to sales = $\frac{\text{Rs. } 17500}{\text{Rs. } 50000} \times 100 = 35\%$

(v) Sales required to earn a desired profit of Rs. 10000

= $\frac{\text{FC} + \text{DP}}{P/V \text{ Ratio}}$

$$= \frac{\text{Rs. 13000} + \text{Rs. 10000}}{0.40} = \text{Rs. 57500}$$

(vi) Profit when sales is Rs. 80000

$$\begin{aligned} \text{Contribution} &= \text{Sales} \times \text{P/V ratio} \\ &= \text{Rs. 80000} \times 0.40 \\ &= \text{Rs. 32000} \\ \text{Profit} &= \text{Contribution} - \text{FC} \\ &= \text{Rs. 32000} - \text{Rs. 13000} \\ &= \text{Rs. 19000} \end{aligned}$$

8.9 Marginal Costing - A Tool for Decision Making

Decision making is a process of selecting any of the alternatives available after evaluation of all options with an aim of maximizing the profit of the concern. The decision making process starts with recognizing the problem, then identifying the various alternatives, then after evaluating different alternatives with the helps of cost benefit analysis and finally adopt the most profitable course of action.

Therefore, Marginal Costing is a useful tool to management in taking various policy decisions, profit planning & cost control. Marginal Costing is very useful technique to the management in formulating policies & making the following decisions:

- (a) Price Fixation –
- (b) Exploring New Markets and Acceptance of Special Order
- (c) Make or Buy Decision
- (d) Add or Drop Decision
- (e) Sales Mix Decision
- (f) Plan shut Down Decision
- (g) Key Factor / Limiting Factor

- (a) **Price Fixation** Pricing process is different in different industries. It differs according to the nature, cost and demand of the product. Every product. Every producer accepts the different criterion for pricing product. In normal business conditions, the price fixed must cover full costs otherwise firm will incur losses,. In certain circumstances like trade depression, dumping, seasonal fluctuation in demand, highly competitive market etc. pricing is fixed with the help of marginal costing. During trade depression, the price may go down even below the full cost of the product. In such case, the main emphasis of management is to minimize its losses. The firm should continue its production activities so long as the selling price is more than the marginal costs because any contribution earned will help in recovery of the fixed costs which results in reduction of loss. Dumping means selling the product in foreign market at a price less than its total cost. The firm recovers its fixed cost from the domestic market and marginal cost of the product becomes the basis for price fixation. Similarly if the firm produces product of seasonal demand or perishable goods marginal costing is useful technique.
- (b) **Exploring New Markets and Acceptance of Special Order** In case of spare capacity, a firm can increase its total profits by accepting an special order above the marginal cost and at a price lower than its regular selling price. The additional contribution earned form the special order will be the additional profit to the firm. When additional order is accepted additional markets is explored at

a price below prevailing price to utilize idle capacity, it should be carefully seen that it will not affect the normal market and goodwill of the company.

- (c) **Make or Buy Decision** A particular component used in the main product may be purchased or may be manufactured in its own factory by utilizing the idle capacity of the existing facilities. In such make or buy decision, the marginal cost of manufacturing in the unit is compared with the purchase price from the market. If marginal cost is less than the purchase price, then the component should be manufactured in its own unit, otherwise it should be purchase form the market. Fixed expenses are not taken in the cost of manufacturing on the assumption that they have been already incurred, the additional cost involved is only variable cost.
- (d) **Add or drop decision** An organization may have a number of product lines or departments, certain product lines or departments may turn out to be unprofitable with the passage of time or due to technological developments. Production of such products or departments can be discontinued. The marginal costing approach assisting these situations to take decision. It helps in the introduction of a new product line and work as a good guide for deciding the optimum mix keeping in mind the available resources and demand of the product. The contribution of different products or departments is to be compared and the product or department whose P/V ratio is the lowest is to be dropped out.
- (e) **Sales Mix Decision** In marginal costing, profit is calculated by subtracting fixed cost from contribution. It means management should try to maximize the contribution. When a business firm produces variety of product lines, then problem of best sales mix arises. The best sales mix is that which yields the maximum contribution. The product which gives the maximum contribution are to be retained and their production should be increase keeping in view the demand. The products, which yield less contribution, should be reduced or close down depending upon the situation.
- (f) **Plant Shut Down Decision** This type of decision is being taken when the nature of business is seasonal, cut-throat competition and other un-favorable conditions of the market are there. When one shuts down his plant, there are some avoidable, traceable or escapable fixed costs such as salaries of temporary workers and salary of sales man, which can be stopped by this decision. Some unavoidable or un-escapable costs are: depreciation on fixed assets, rent of office and factory, insurance, interest and salaries of permanent staff. These can not be stopped by shutting down the plant temporarily. Some additional cost of Shut Down or Reopening Cost should be considered as the part of the unavoidable costs. Normal decisions are for maximizing the profit; but Shut Down decision is for reducing the loss as it always considers the savings under loss.

Calculation of net avoidable costs

$$\text{Net Avoidable FC} = \text{Total FC} - (\text{Un-avoidable FC} + \text{Re-opening Cost})$$

8.9.1 Key Factor/ Limiting Factor

The marginal costing technique provides that the product with highest contribution per unit is preferred. This inference holds true so long as it is possible to sell as much as it can produce. But sometimes an organization can sell all it produces but production is limited due to scarcity of raw material, labour, electricity, plant capacity or capital.

These are called key factors or limiting factors. A key factor or limiting factor puts a limit on production and profit of the firm. In such a situation, the management has to take a decision whether production is to be increased, decreased or stopped. In such cases, the selection of a product is done on the basis of contribution

per unit of scarce factor of production. The key factor or scarce factor should be utilized in such a manner that contribution per unit of scarce resource is the maximum.

$$\text{Profitability} = \frac{\text{Contribution}}{\text{Key Factor}}$$

For example, if raw material is the limiting factor, the profitability of each product is determined by contribution per kg of raw material. If machine capacity is a limiting factor then contribution per machine hour is calculated. If electricity is the limiting factor, then contribution per unit of electricity of each product is calculated.

8.10 Summary

Marginal costing involves computations of marginal cost. It comprises direct material, direct labour and variable overheads. Marginal costing helps the management in taking various managerial decisions like price fixation, profit planning, add and drop decisions, make or buy decision, sales mix decision etc. Marginal costing technique has some limitations. The categorization of expenses into fixed and variable elements is tedious and complex task. The behavior of per unit variable and total fixed cost is questionable as assumed in marginal costing.

Break even analysis helps in ascertaining the level of production where total costs equals to total revenue. Below this level of production, there are losses and above this point depicts the profit zone. It represents the level of activity at which revenue from sale of goods and services is just equal to total cost incurred to produce and sell the same. If sales volume exceeds the break even volume even by one unit the company earns profit. The amount of profit is equal to total cost incurred to the product of excess of units sold over and above break even volume. Similarly, if the sales volume falls below Break even volume even by one unit, the company sustains loss. The analysis is based on cost classification into fixed and variable costs. Break even analysis helps in measuring the effect of changes in volume, costs, selling price and product mix on profit. It is expressed in terms of units or in value terms. This technique is very useful in profit planning and decision making. It can be applied to estimate profits at a given sales volume, sales volume required to earn a desired profit, calculating sale volume required to offset price reduction, ascertaining the margin of safety, measuring the effect of changes in profit factors etc. The other tools in this analysis are profit-volume ratio, margin of safety and angle of incidence.

Before taking a decision, one must analyze the alternatives available before him and then one should take a decision, which is beneficial to the management. The decision should be in such a way that it increases the profit of the company. When we take a decision for a short period, normally we look at the contribution we received in all the available alternatives and compare them and one should accept the alternative, which provides more contribution, as in shorter period it is presumed that fixed costs will not change.

8.11 Key Words

- **Marginal Cost:** It comprises direct material, direct labour and variable overhead or cost of producing one additional unit.
- **Marginal Costing:** It is a technique where only variable costs are considered while computing the cost of product. The fixed costs are met against the total contribution of all the products taken together.
- **Cost - Volume - Profit Analysis** It is a technique to study the effects of costs and volume variations on profit.

- **Contribution:** The difference between sale price and variable costs is called contribution.
- **Break Even Point:** A level of production activity, where sales revenue is equal to variable cost and fixed cost or contribution is equal to fixed cost. It is also called 'no profit, no loss' point.
- **Profit Volume Ratio** It is a relationship between contributions to sales.
- **Margin of Safety** is the difference between actual sales and sales at break even point. It shows the amount by which sales may decrease before losses occur.

8.12 Self Assessment Test

1. Explain the application of marginal costing in managerial decision making.
2. The profit is the product of the P/V ratio and the margin of safety'. Comment.
3. 'Cost -volume profit analysis and break even point analysis are the same' Comment.
4. Explain the significance of Profit-Volume Ratio, Margin of safety and Angle of incidence.
5. What is Contribution? How does it help the management in taking managerial decisions?
6. From the following data prepare marginal cost statement-

	X	Y	Z
Sales	30000	60000	80000
Direct Material	12000	25000	36000
Direct Labour	8000	10000	14000
Factory Overhead:			
Variable	2000	3000	5000
Fixed	6000	8000	6000
Administrative			
Overhead Fixed:	1000	2000	2000
Selling Overhead			
Variable:	1000	3000	3000
Fixed	2000	2000	3000

(Ans: Profit: Rs. 16000, X:Rs. 2000, Y Rs. 7000, Z Rs. 11000)

7. Calculate (1) P/V Ratio, BEP, Fixed Overhead
 (2) Sales of Earn a profit of Rs. 1.60 Lakh
 (3) Profit Earned when sales are Rs. 2 Lakh.

Following information is taken out form books of company-

	Period I	Period II
	Rs.	Rs.
Sales	4,00,000	6,00,000
Profit	40,000	80,000

(Ans.: (1) 20%, Rs. 2 Lakh, Rs. 40000, (2) Rs. 10 Lakh (3) BEP)

8. Rudra Ltd. manufactures and sells four types of products under the brand names of P, Q, R and S. The sale mix in value comprises 34%, 40%, 16% and 10% of P, Q, R and S respectively. The total budgeted sales (100%) are Rs. 60000 per month. Operating costs are:

Variables costs ratio is (variable cost on % of sales)

P	60%
Q	65%
R	70%
S	40%

Fixed costs are Rs. 15,000 per Month. Calculate the break even point for the products on overall basis. (Ans BEP Rs. 39062.50)

9. Explain from the following data, how the reduction in selling price would affect the break even point and margin of safety.

Selling price per unit	Rs. 10
Variable cost Material	Rs. 3
Labour	Rs. 2
Variable overhead	Rs. 1

Fixed overhead is Rs. 4000. Full capacity of the plant is 5000 units. Reduced selling Price is Rs. 8 per unit.

(Ans: BEP increase by 1000 units and M/S decrease by Rs. 16000)

10. Ashish Ltd., has a margin of safety 37.5% with an overall contribution sale ratio of 40%. The fixed cost is Rs. 5 lakhs.

Calculate the following:

- (i) Break even point
- (ii) Total Sales
- (iii) Total variable cost
- (iv) Profit

(Ans: i)Rs. 12,50,000 ii) 20,00,000 iii) Rs. 12,00,000 iv) Rs. 3,00,000)

11. The P/V ratio of a concern is 50% and margin of safety is 40%. Calculate the net profit of the sales is Rs. 1,00,000.

(Ans : profit Rs. 20,000)

12. AXE Ltd. has earned a contribution of Rs. 200000 and net profit of Rs. 150000 on sales of Rs. 800000. What is the break even point and margin of safety?

(Ans: Rs. 200000 M/S is Rs. 600000)

13. From the following cost information:

	2009	2010
Sales (Rs.)	1,50,000	2,00,000
Profit (Rs.)	30,000	50,000

Calculate:

- (i) P/V Ratio
- (ii) Break even point
- (iii) Sales required to earn a profit of Rs. 80,000
- (iv) Profit when sales is Rs. 2,50,000

[Ans: (i) 0.40 (ii) Rs. 75,000 (iii) Rs. 2,75,000 (iv) Rs. 70,000]

14 Chitragupt Ltd. furnishes the following data relating to year 2010

	Sales	Total Cost
Jan to June	Rs. 1350000	1200000
July to Dec.	Rs. 1500000	1290000

- Calculate:
- (i) P/V Ratio, Break Even Sales, Fixed Cost, and Margin of safety.
 - (ii) Sales needed of profit of Rs. 4.40 Lakh
 - (iii) Profit when sales are Rs. 30 Lakh
 - (iv) Sales to earn a profit of 10% on sales.

[Ans: (i) 40%, Rs. 19.50 Lakh, Rs. 7.80 Lakh, 31.58% (ii) Rs. 34.75 Lakh (iii) Rs. 4.2 Lakh (iv) Rs. 26 Lakh]

15. Price during depression have reduced to increase sales, find the volume of sales to maintain the same profit if reduction in S. P is 10%

Sales 20,000 Units @ Rs. 10 p.u.

Variable cost Rs. 7 p.u.

Fixed Cost Rs. 40,000 p.a.

[Ans: P/V Ratio before reduction 30% after 22.2%, 30000 Units be sold maintain profit as Before]

8.13 Reference Books

Agrawal Sharma, Agrawal, Shah, Agrawal, *Financial Accounting and Decision Making*.

Agrawal M.R., *Management Accounting*.

Jain, Khandelwal, Pareek, Dave, *Financial Accounting and Decision Making*.

Unit - 9 Cost Analysis for Decision Making

Unit Structure

- 9.0 Objectives
- 9.1 Introduction
- 9.2 Meaning and Nature of Decision Making
- 9.3 Financial and Non-financial Considerations
- 9.4 Techniques of Decision Making
- 9.5 Summary
- 9.6 Key Words
- 9.7 Self Assessment Test
- 9.8 Reference Books

9.0 Objectives

After studying this unit you should be able to understand:

- Definition and stages of Decision Making
- Financial and non-financial factors to be considered
- Various techniques of Decision Making
- Analysis of cost data for pricing decisions
- Analysis of cost data for selection of optimum Product
- Analysis of cost data for Make or Buy Decisions
- Analysis of cost data for profit Planning
- Analysis of cost data for plant shut down Decisions
- Analysis of cost data for Further Processing or selling Decisions
- Analysis of cost data for determination of optimum level of production
- Analysis of cost data for Adding or Dropping a product line
- Analysis of cost data for Replacement Decisions.

9.1 Introduction

One of the basic functions of management is decision making and decision making often involves selecting a course of action from among a set of alternatives. There are two or more alternatives available for each problem, of which one such alternative should be considered.

The most useful contribution of marginal costing technique, break even analysis, differential cost analysis is to give assistance to the management in vital decision making. Specific areas where marginal costing proves its worth is in decision making process for example operating decisions and establishment decisions in which marginal costing and other techniques prove their role.

9.2 Meaning and Nature of Decision Making

Decision making is a process in which the best course of action is selected to get desirable results. According to D.E. MC Forland "A decision is an act of choice when in an executive form a conclusion

about what must not be done in a given situation.” A decision represents a course of behaviour chosen from a number of possible alternatives. Decision is a dynamic process, it is a process of defining the problem, identifying the possible alternatives and evaluating each alternative to get best course of action. It includes forecasting too. It cannot be specified by any formula, it includes risk, uncertainty and opportunity of action.

Stages of Decision Process :

1. Identifying the problem : First of all it is necessary to identify the problem in the correct Perspective.
2. Analysing the problem : Now the next step is to analyse the various aspects of the problem. It is necessary to collect additional information, which is useful in decision making.
3. Identifying various alternatives : The next step is to develop the possible ways to take best decision. It can be developed by a team which consists of experts in that field.
4. Screening the alternatives : After developing possible alternatives these should be screened on the basis of risk, economy, timing and limitation of resources.
5. Considering non-cost factors : It is necessary to consider various non-cost factors, which will affect the decision.
6. Making a decision : Now the best alternative is chosen on the basis of its merits.
7. Implementing and following the decision-Implementation is the important phase in decision making. Practical efficacy of decision can be measured after implementing it.

9.3 Financial and Non-financial Considerations

- **Financial factors:** During the course of decision making necessary facts are collected for each alternative in numerical form or in term of money. It is called as financial consideration. It includes factors like cost, revenue and capital employed for each decision.
- **Costs useful while taking decisions :** Imputed costs, opportunity cost, relevant and irrelevant costs, out of pocket costs, sunk costs, postponable costs, discretionary costs, etc. The meaning of each costs has already been discussed in unit eight.
- **Non-Financial factors:** Some of the other factors, which are not measurable numerically, are also considerable for a decision. These factors can not be measured, but they have considerable effect for a decision. These are as follows:
 1. Employee Morale
 2. Health, safety and working conditions.
 3. Government policies, Regulations, control and incentives.
 4. Nature of industry.
 5. Economic Environment.
 6. Effect on relation with customer, government and general public.
 7. Stability, quality and reliability.

Activity	
1.	In a sugar industry which is the most considerable non financial factor, while taking decision?
2.	‘Differential costing is useful for decision making’. Discuss.

9.4 Techniques of Decision Making

There are two techniques viz. costing techniques and statistical techniques. We are considering here only costing techniques which are as follows:

1. Marginal costing - Separately discussed in unit 14.
2. Break - Even Analysis - Separately discussed in unit 14.
3. Differential cost technique : Differential cost is the difference in cost between one alternative and another. It is obtained by subtracting the cost of one alternative from the cost of another alternative. Normally the differential cost is synonymous with the variable costs of producing the specific number of units. It is useful in the following decisions:
 1. Determining optimum level of production.
 2. Further processing.
 3. Adding or dropping a product line.
 4. Replacement decisions.

9.4.1 Specific Decision : Pricing Decision

In general condition of the market pricing decision is based on cost and normal profit. But it is regulated by market conditions and other economic factors. The marginal cost approach is useful while taking this decision. Sometimes price can be fixed lower than the normal selling price or lower than the total costs, but it cannot be less than marginal cost in any case. These specific conditions are: (i) Trade depression and competition (ii) use of unutilised capacity (iii) export sale decisions, (v) acquiring new customer.

Sometimes the pricing decision can be taken at lower than the marginal cost, but it should be for very short term period. In the following conditions, such type of decisions can be taken (i) to dispose of perishable goods (ii) to explore new market (iii) to aid new product in market (iv) to eliminate the competitors from the open market.

Illustration: Marginal cost is Rs. 7 per unit, fixed cost is Rs. 1,00,000, selling price per unit is Rs. 8 and 50,000 units can be sold at this price. Say whether the decision of selling the product should be taken.

Solution:

$$\text{Total cost and per unit cost for 50,000 units} = \frac{(50,000 \times 7) + 1,00,000}{50,000} = \frac{4,50,000}{50,000} = \text{Rs. 9}$$

Thus, although the selling price does not cover the total cost, it is a wise decision to continue to produce and sell because it reduces the loss on account of fixed cost, which is unavoidable in normal circumstances. If production is stopped, the loss would be Rs. 1,00,000 and if it is continued then loss is $[50,000 \times 8 - 4,50,000] = \text{Rs. 50,000}$ only. But such a decision can be taken after considering non cost factors also and for short term only.

Illustration: A company has a capacity to produce 5,000 units but demand in home market is only 2,000 units at a selling price of Rs. 80 per unit. The cost structure is:

Material Rs. 20 per unit, wages Rs. 18 per unit, variable factory overhead Rs. 10 per unit and variable selling overhead Rs. 8 per unit. Fixed costs : Administration Rs. 18,000 and Selling overheads Rs. 10,000.

An additional export order for the supply of 3000 unit is received at Rs. 65 per unit. Should this order be accepted or not ?

Solution:

Statement showing profitability

	Home Market (2000 Units)	Export Market (3000 Units)	Total (5000 units)
Variable costs (20+18+10+8)	1,12,000	1,68,000	-
Sales	1,60,000	1,95,000	-
Contribution (S-V)	48,000	27,000	75,000
(-) Fixed cost (18000+10000)	28,000	-	28,000
Profit	20,000	27,000	47,000

Since fixed costs have already been recovered from the home market and additional contribution of Rs. 27,000 is being fetched it should be accepted. But several non-cost factors should also be considered viz whether sale at foreign market affects the prices of home market ? If, it is so, then decision may be changed.

The student should note that fixed cost is normally unavoidable, hence it will always effect the decision.

Illustration: A company is operating at 70% of its capacity. It has annual normal capacity of 10 lakh direct labour hours. The company has recently been approached by a customer to buy 1,50,000 units of its product at a selling price of Rs. 10.40per unit. Present cost structure : Materials 6 kg per unit @ Rs. 0.40 per kg., wages 2 hours per unit @ Rs. 2.5 per hour, variable overhead 2 hours per unit @ Rs. 0.75 per hour. Fixed cost Rs. 12,00,000.

The management of the company is to decide would it be profitable to accept this offer. ?

Solution:

Incremental Revenue (1,50,000 X 10.40)		Rs. 15,60,000
Incremental costs :)		
Material (2.40 X 1,50,000)	3,60,000	
Wages (5 X 1,50,000)	7,50,000	
Variable overhead (1.5 X 150000)	<u>2,25,000</u>	Rs. <u>13,35,000</u>
Incremental Profit		<u>Rs. 2,25,000</u>

Hence, offer should be accepted because it is beneficial.

9.4.2 Specific decision : Selection of Optimum Product Mix

When a manufacturing concern produces more than one product then combination of all products in total production should be decided to fetch maximum profit. We can understand this by the following illustration.

Illustration:

A manufacturing unit gives the following information:

	Product X	Product Y
	Rs.	Rs.
Direct materials per unit	20	25
Direct labour @ Rs. 1 per hour	10	20
Variable overhead 100% of direct labour	-	-
Selling price per unit	60	100
Fixed overhead Rs. 10,000 per annum		

You are required to recommend which of the following sales mix should be adopted:

- (a) 900 units of X and 600 units of Y (B) 1200 units of X and 400 unit of Y (c) 1200 units of Y only (D) 1800 unit of X only.

Solution: First to calculate contribution per unit of each product.

	Product X	Product Y
	Rs.	Rs.
Direct materials	20	25
Direct wages	10	20
Variable overhead	10	20
Marginal cost	40	65
Contribution	20	35
Selling price	60	100

Statement showing Contributions & profits of different sales mixtures

Sales Mix	Total Contribution	Fixed cost	Profit
(A) 900 units of x 600 units of y	900 X 20 = 18000 600 X 35 = 21000 35000	10000	25000
(B) 1200 units of x 400 units of y	1200 X 20 = 24000 400 X 35 = 14000 38000	10000	28000
(C) 1200 units of y	1200 X 35 = 42000	10000	32000
(D) 1800 units of x	1800 X 20 = 36000	10000	26000

Decision : Sales mix (c) is recommended as it yields the highest profit i.e. Rs. 32000. It is due to contribution per unit of y is more than x.

Some times limiting factor (key factor) is given in that case to select optimum production mix, such product should be considered, which gives higher contribution per unit of key factor.

$$\text{Profitability} = \frac{\text{Contribution}}{\text{Key factor}}$$

We can understand this by the following illustration :

Illustration :

A factory produces three products and furnishes the following details :

	A	B	C
Materials per unit	20 kg	12 kg	30 kg
Labour hours per unit	3 hrs.	5 hrs.	4 hrs.
Selling Price per unit	Rs. 250	Rs. 200	Rs. 400
Maximum possible output in units	1400	900	800

- (i) 48000 kg of raw material @ Rs. 10 per kg. can be obtained. you are required to calculate optimum product mix.
- (ii) If 9200 hours are available at a cost of Rs. 10 per hour. Calculate optimum product mix.

Solution:

Profitability Statement

Particulars	A	B	C
Raw material per unit	Rs. 200	Rs. 120	Rs. 300
Wages per unit	30	50	40
Marginal cost per unit	230	170	340
Sales per unit	250	200	400
Contribution per unit			
Contribution per kg of material = $\frac{\text{Contribution}}{\text{Material per unit}}$	20 1.00	30 2.5	60 2.00
Contribution per labour hour : = $\frac{\text{Contribution}}{\text{Labour hr. per unit}}$	6.67	6.00	15.00

- (i) When 48000 kg of material is available, optimum production mix will be in sequence of B,C and A on the basis of contribution per kg.

$$\text{Full production of B } 900 \text{ unit} \times 12 \text{ kg.} = 10800 \text{ kg}$$

$$\text{Full production of C } 800 \text{ units} \times 30 \text{ kg} = 24000 \text{ kg}$$

$$\text{Remaining material } (48000 - 34800) = 13200 \text{ kg}$$

$$\text{will be used for production of A} = \frac{13200 \text{ kg.}}{20 \text{ kg.}} = 660 \text{ units}$$

Hence when material is in short supply, to get maximum profit 900 units of B, 800 units of C and 660 units of A should be produced.

- (ii) If 9200 hours are available, optimum production mix will be in sequence of C, A and B (on the basis of contribution per hr.) :

$$\text{Full Production of C } 800 \text{ units} \times 4 \text{ hrs.} = 3200 \text{ hrs.}$$

$$\text{Full Production of A } 1400 \text{ Units} \times 3 \text{ hrs.} = 4200 \text{ hrs.}$$

$$\text{Remaining hours } (9200 - 7400) = 1800 \text{ in the}$$

$$\text{production of B product i.e.} = \frac{1800 \text{ hrs}}{5 \text{ hrs.}} = 360 \text{ units}$$

Hence when raw material is in short supply, to get maximum profit 800 units of C, 1400 units of A and 360 units of B should be produced.

9.4.3 Specific Decision: Make or Buy

Marginal costing renders useful assistance when a decision has to be taken by the management whether a component should be manufactured internally to fulfil the idle capacity or purchased from the open market. For such a decision marginal cost to make is compared with buying cost. If marginal cost is less than buying cost, the decision taken is to make the component otherwise not we can learn it by following example:

Illustration

Product M takes 20 hours on machine No. 51 It has a selling price of Rs. 150 and Direct material, Direct wages and Variable overhead per unit are Rs. 50, 40 and 20 only. A component Y could be made on machine No. 51 in 4 hours. The marginal cost of component is Rs. 9 and if it is purchased supplier price is Rs. 15 per component.

Should one make or buy Y component. Assume machine hour is the key factor and there is no unutilised capacity.

Solution

Contribution per unit of M product = $[150 - (50 + 40 + 20)] = \text{Rs. } 40$

Contribution per machine hour : $\frac{\text{Rs. } 40}{20 \text{ hrs.}} = \text{Rs. } 2 \text{ per hr}$

If component Y takes 4 hours, the loss of contribution is Rs. 8 (i.e. 4 hrs. X Rs. 2). Hence total cost of component will be Rs. 9 + 8 = Rs. 17. Hence it is better to buy it. If however, there was some unutilised capacity, then there should be no loss of contribution and then decision of making is beneficial.

9.4.4 Specific Decision : Profit Planning

Marginal costing is quite a useful technique in planning profit through cost - volume profit analysis while taking such decisions the manager requires a thorough knowledge about inter-relationship of selling prices, sales volume, variable costs and fixed costs. We can learn this by taking the following example. :

Illustration

A company is producing 60,000 pieces at 60 % capacity at a selling price of Rs. 14.50 per piece. The cost details are as follows :

Direct material Rs. 4 per piece, Direct wages Rs. 1 per piece, factory overhead Rs. 6 per piece (50% fixed), selling overhead Rs. 1 per piece (75% fixed.)

During the current year, he intends to produce the same number of units, but anticipates that (a) fixed cost will go up by 10% (b) material and wages will go up by 5% each, (c) minimum profit Rs. 1,50,000 is required, what minimum selling price would you recommend?

Solution :

Statement showing Marginal cost

Marginal Cost	Past Rs.	Present Rs.
Direct Material	4.00	4.20
Direct Labour	1.00	1.05
Variable factory overhead	3.00	3.00
Variable selling overhead	0.25	0.25
Total Marginal Cost	8.25	8.50

New fixed cost.		Rs.
Fixed factory overhead	1,80,000	
Add. 10% increase	<u>18,000</u>	1,98,000
Fixed selling overhead (1 X 60,000) X 75%	45,000	
Add 10% increase	<u>4,500</u>	49,500
Total fixed cost		2,47,500
Selling price at a profit of Rs. 1,50,000		

$$\frac{V.C. + F.C. + \text{Profit}}{\text{No. of Units}} = \frac{(60,000 \times 8.50) + 2,47,500 + 1,50,000}{60,000} = \text{Rs. } 15.125.$$

9.4.5 Specific Decision : Plant Shutdown Decisions

Due to depression or acute competition business can be shut down temporarily or permanently. Normally in short term business, activities are suspended temporarily, in that case decision depends on escapable fixed cost and additional cost of overhauling the plant to restart it. If total contribution exceeds net escapable cost then plant should continue, if, otherwise, it should be shut down. Shut down point can be measured by the following formula :

$$\frac{\text{Net Escapable Fixed Cost} [\text{Total fixed cost} - (\text{unescapable fixed cost} + \text{additional cost of shut down})]}{\text{Contribution per unit}}$$

We can learn this by taking the following example:

Illustration:

Advise whether to continue or to close down the factory from the following data :

Production capacity 60%	6000 units
Contribution per unit	Rs. 2
Fixed Expenses	Rs. 20,000
Fixed expenses when the factory is shut down	Rs. 12,000
Additional Expenses in closing down	Rs. 1,000

Also calculate shut down point.

Solution:

(i)	If factory continues :	Rs.
	Total Contribution (6000 X 2)	12,000
	Less: fixed costs	<u>20,000</u>
	Net Loss	<u>8,000</u>
(ii)	If factory shut down :	
	Unescapable fixed costs	12,000
	Additional Expenses on shut down	<u>1,000</u>
	Net Loss	<u>13,000</u>

Loss to continue the factory is less than when shut down hence it is advisable to continue the business.

$$\begin{aligned} \text{Calculation of shut down Point} &= \frac{\text{Net Escapable fixed cost}}{\text{Contribution per unit}} \\ &= \frac{[20,000 - (12,000 + 1000)]}{\text{Rs. 2}} = 3500 \text{ units} \end{aligned}$$

Verification :

Contribution at shut down point 3500 X 2	Rs. 7,000
(-) Fixed cost	<u>Rs. 20,000</u>
Loss (It is equal to loss at shut down)	<u>Rs. 13,000</u>

Sometimes, return on capital invested is not fetching at normal rate and there is no chance of recouping this condition, the business man can take the decision of permanent closure of the business. While taking this decision if income when continue the business is higher than income from investment of the selling value of the business, then business should not discontinue and if otherwise it should be discontinued. It can be learnt through the following example :

Illustration :

A company manufactures a product whose sales have declined to Rs. 280000 per annum and there is no hope of improvement in the near future. Plant estimated life is 5 years, and there is no chance of using this machine for other purpose. Variable costs are 60% of sales and fixed costs Rs. 1,00,000 including plant depreciation Rs. 50,000. The factory may be sold for Rs. 260000 and there would be no residual value. If factory is sold and money invested else where it may earn an interest of 6% which may be considered as the normal rate of return on investment in the business.

The management seeks your advice as to whether they should continue to operate or should close down immediately. From the interest table you find that the compound value of Rs. 1 at the end of 5 years is 5.637.

Solution :

(i) If Business continues to next 5 years-	Rs.
Sales	2,80,000
(-) Marginal costs (60% of sales)	<u>1,68,000</u>
Contribution	1,12,000
(-) fixed cost (excluding depreciation)	<u>50,000</u>
Net cash inflow	<u>62,000</u>
Future value of net cash inflow after 5 years (62000 X 5.637)	<u>3,49,494</u>
Expected Income	<u>3,49,494</u>
(ii) If factory is sold immediately :	Rs.
Sale Value	2,60,000
Add: Interest @ 6% for one year on Rs. 2,60,000	

i.e. Rs. 15,600

for five years compound value (15,600 X 5.637) 87,937

Total Income 3,47,937

It is beneficial to continue the business because expected income is higher in case of continuing the present business instead of sale.

9.4.6 Specific Decision (6) : Processing of By Product or Scrap

The raw material is passed through various processes for completion, but during the course of processing that product can be sold at split-off point without further processing. Now the question arises, whether such goods should be sold at split-off point or processed should be further and then sold after completion. We can learn it by the following example, how decision can be made by the management in the interest of the business:

Illustration :

A company purchases crude oil. It refines it. The refining process results in four products at split-off point viz. A,B,C and D Product A,B,C and D can be individually further refined into AX, BX, CX and DX.

Product	Sales at Split-off point (Rs.)	Sales after further Processing (Rs.)	Output at Split-off point (gallons)	Additional Processing (Rs.)
A	20,00,000	1,20,00,000	3,00,000	80,00,000
B	12,00,000	40,00,000	1,00,000	32,00,000
C	20,00,000	60,00,000	50,000	30,00,000
D	28,00,000	48,00,000	50,000	36,00,000

Joint costs upto split-off point were Rs. 40,00,000.

You are required to (i) determine which products the firm should sale at the split-off point and which after further processing. (ii) determine most profitable action and calculate amount of profit at this situation.

Solution

(i) Decision about further processing

Products	A	B	C	D
Sales revenue after further processing	1,20,00,000	40,00,000	60,00,000	48,00,000
(-) Sales revenue at split-off point	20,00,000	12,00,000	20,00,000	28,00,000
Incremental sales revenue	1,00,00,000	28,00,000	40,00,000	20,00,000
(-) Further processing cost	80,00,000	32,00,000	30,00,000	36,00,000
Profit/Loss arising due to further Processing	20,00,000	(4,00,000)	10,00,000	(16,00,000)

Suggestion : From the above analysis product A & C should be further processed but product B & D should be sold at split-off point.

(ii) Income Statement at best profitable situation:

Products	A	B	C	D	Total
Sale Value (After Processing)	1,20,00,000	-	60,00,000	-	18000000
(Before Processing)	-	12,00,000	-	28,00,000	4000000
(-) Additional Processing Costs for A & C	1,20,00,000 80,00,000	12,00,000 -	60,00,000 30,00,000	28,00,000 -	22000000 11000000
(-) Joint Costs (allocation not needed)	40,00,000 -	12,00,000 -	30,00,000 -	28,00,000 -	11000000 4000000
Profit	-	-	-	-	7000000

9.4.7 Specific Decision : Determination of optimum level of Production

In most of the industrial units the production level is not always the same, it is different due to certain circumstances. Fixed costs increases over certain capacity and sale price decreases due to more supply in the market, hence, such level of production should be decided where profit is maximum. In order to arrive at a decision of this type, the differential costs are compared with incremental revenue at various levels of output. When incremental revenue is equal to differential cost or incremental revenue is slightly higher to differential costs, such level of production is called best profitable level of production and it should be maintained to earn more profits. It can be clarified through the following example :

Illustration :

A company has a capacity of producing 1,00,000 units of a certain product in a month. The sales department reports that the following schedule of sale prices is possible :

Volume of Production	60%	70%	80%	90%	100%
Selling Price per unit : (Rs.)	0.90	0.80	0.75	0.68	0.64
Total Semi variable costs (Rs.)	300	400	500	400	400

The variable cost is Rs. 0.15 per unit and fixed costs is Rs. 40,000.

Prepare a statement showing incremental revenue and differential cost of each stage. At which volume of production will the profit be maximum ?

Solution :

Statement showing the Total Differential Costs and Incremental Revenue.

Output	Semi Variable Cost Rs.	Variable Cost Rs.	Fixed Cost Rs.	Total Cost Rs.	Differential cost Rs.	Total Sales Rs.	Incremental Revenue Rs.
60,000	300	9,000	40,000	49,300	-	54,000	-
70,000	400	10,500	40,000	50,900	1,600	56,000	2,000
80,000	500	12,000	40,000	52,500	1,600	60,000	4,000
90,000	400	13,500	40,000	53,900	1,400	61,200	1,200
1,00,000	400	15,000	40,000	55,400	1,500	64,000	1,000

At 80% level of production, the profit is maximum because incremental revenue is higher than differential costs upto this level only. After 80% level differential cost exceeds incremental revenue thereby resulting in a loss.

9.4.8 Specific Decision : Adding or Dropping a Product Line

In a multi-product production unit, the management may have to decide on adding or dropping a product line. If a new product line is added, its sales and certain costs will also be increased and the reverse will happen when a product line is dropped. In order to arrive at a decision a comparative profit statement should be prepared for both the conditions. It is explained by the following example.

Illustration :

The management of a company is thinking whether it should drop product 'B' due to less contribution and replace it with another. Given below are cost and output data.

Product	Sales price per unit (Rs.)	Variable costs per unit (Rs.)	Percentage of Sales
A	60	40	30%
B	100	60	20%
C	200	120	50%

Total fixed costs for the year Rs. 7,00,000

Total sales Rs. 25,00,000

If product 'B' is dropped a new product 'D' can be introduced, the manufacturer forecasts the following cost and output data :

Product	Sales price per unit (Rs.)	Variable costs per unit (Rs.)	Percentage of Sales
A	60	40	50%
C	200	120	10%
D	160	100	40%

Total fixed costs for the year Rs. 7,00,000

Total sales Rs. 27,00,000

Is this proposal to be accepted ?

Comparative Profit Statement

	Existing Situation				Present Situation			
	A	B	C	Total	A	C	D	Total
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Sales	7,50,000	5,00,000	12,50,000	25,00,000	13,50,000	2,70,000	10,80,000	27,00,000
(-)V.cost	5,00,000	3,00,000	7,50,000	15,50,000	9,00,000	1,62,000	6,75,000	17,37,000
Contrib ution	2,50,000	2,00,000	5,00,000	9,50,000	4,50,000	1,08,000	4,05,000	9,63,000
(-)Fixed Cost				7,00,000				7,00,000
Profit				2,50,000				2,63,000

The profit position improves if the line is replaced. Therefore, the proposal should be accepted.

9.4.9 Specific Decision: Replacement Decisions

Sometimes, the management have to decide to replace the present plant by a new one. This type of decisions can be made by calculating net income of each situation. Then, higher income alternative is

chosen. The cost of removing the existing plant and interest on additional investment should also be taken into consideration. From the following example we can understand this type of situation :

Illustration

A Ltd. purchased a machine 5 years ago. A proposal is under consideration to replace it by a new machine. The existing machine can be sold at Rs. 60,000. As the cost Accountant of the company, you are required to submit your recommendations based on the following information : Interest is paid @ 10% per annum on fresh capital introduced.

	Existing Machine Rs.	New Machine Rs.
Initial cost	1,50,000	4,00,000
Marginal cost per unit	60	55
Selling price per unit	125	125
Fixed expenses	50,000	1,50,000
Annual production (units)	2,000	4,000
Life (years)	10	10
Scrap value of machine	-	-

Solution

Statement showing comparative Profitability

	Existing Machine Rs.	New Machine Rs.
Total Marginal cost	1,20,000	2,20,000
Total fixed cost	50,000	1,50,000
Interest on additional capital 10% of (Rs. 4,00,000-60,000)	-	34,000
Depreciation (SLM Method)	15,000	40,000
Loss on sale of old machine	-	1,500
Total Cost	1,85,000	4,45,500
Total sales	2,50,000	5,00,000
Profit	65,000	54,500

Decision : Existing machine is profitable because it provides more profits than a new one.

Note : Loss on sale of old machine is divided in economic life of new machine : Rs.

WDV of old machine on this date	75,000
(-) sale consideration	60,000
Loss	15,000

Loss per year $15,000/10 = \text{Rs. } 1500$

Activity

While taking replacement decisions, which points should be kept in mind?

9.5 Summary

Cost accounting paves a vital role in managerial decisions. Marginal costing, differential costing and CVP analysis are the basic techniques for decision making. Each decision is affected by financial as-well-as non-financial factors. Some times due to strong non-financial factors, financial results are ignored for decision making. Decision is a process of identifying the problem, analysing the problem, identifying the alternatives, screening them, to get outcome. There are several types of decisions, which are to be taken in course of running the business. Each decision has its own importance, which cannot be neglected.

9.6 Key Words

- **Marginal Costing:** It is the ascertainment of marginal cost, by differentiating between fixed and variable costs, and of the effect on profit of changes in volume or type of output.
- **Differential Costing:** It is the difference in cost between one alternative and another. It is synonymous with the variable costs of producing the specific number of units in normal course.
- **Break Even Analysis:** It is a system of analysis that can be used to determine probable profits/Loss at a given level of output.
- **Key Factor:** A factor in the activities of an undertaking, which at particular point of time or over a period will limit the volume of output.

9.7 Self Assessment Test

1. Discuss the nature of decision making function of management and mention the techniques of decision making.
2. What are the financial and non-financial considerations in management decision making ?
3. Explain factors to be considered while taking make or buy decision ?
4. A company produces two products A & B. The following information is given :

	Product A	Product B
Contribution per unit	Rs. 3	Rs. 5
Required production hours per unit	1	2
Sales (units)	1500	800
Available production hours	2000	-

Determine the optimum product mix.

Ans: A 1500 units (1500 hours), B-250 units (500 hours)

5. A ltd. purchases 20,000 belts per annum for an outside supplier at Rs. 5 each. The management feels that these should be manufactured and not purchased. A machine costing Rs. 60,000 will be required to manufacture the item within the factory. The machine has an annual capacity of 25,000 units and life of 5 years. The following additional information is available:

Material cost Rs. 2 per unit, labour cost Rs. 1.00 per unit.

variable overheads 100% of labour cost

You are required to advise whether (i) the company should continue to purchase the belts from the outside supplier or should make them in the factory.

Ans : Rs. 4.60 or 5, to be purchased.

6. A firm gives the following data :

Fixed Expenses	Rs. 16,000
Additional Expenses in closing down	Rs. 1,200
Fixed Expenses when the factory is shutdown temporarily	Rs. 10,000
Production at 40% capacity is	4,000 units
Contribution per unit is	Re. 1

Advise whether to continue the factory or to close it down. Also calculate shut down point.

Ans: To continue loss Rs. 12,000 and when shut down Rs. 11,200 hence not to continue, shut down point 4,800 units.

7. A company is producing three type of products. The following information is given :

	A	B	C
	Rs.	Rs.	Rs.
Marginal cost per unit	27	38	43
Fixed cost per unit	5	8	9
Selling price per unit	42	62	63
Net profit per unit	10	16	11
Production in units	4000	2000	5000

The sales manager wants to discontinue one product from market and guarantees that production of other two products shall rise by 50 per cent. He wants to discontinue A as it appears to be least profitable. Do you agree ? If not, which product should be discontinued?

Ans: Agree, profit will increased from Rs. 1,27,000 to Rs. 1,41,000

9.8 Reference Books

Gorden Snillinglaw, *Cost Accounting : Analysis & control*

Saxena, Vashist, *Cost Accounting*

Ghosh T. P., *Cost Accounting*

Unit - 10 Process Costing

Unit Structure

- 10.0 Objectives
- 10.1 Introduction
- 10.2 Definition and Characteristics
- 10.3 Advantages and Disadvantages
- 10.4 Preparation of Process Accounts - I
- 10.5 Preparation of Process Accounts - II
- 10.6 Treatment of Normal, Abnormal Wastages and Abnormal Gains
- 10.7 Treatment of Fully Completed Stock
- 10.8 Treatment of Joint and by Products
- 10.9 Calculation of Inter Process Profit.
- 10.10 Treatment of Partially Completed Stock under (equivalent Production) FIFO Method
- 10.11 Summary
- 10.12 Key Words
- 10.13 Self Assessment Test
- 10.14 Reference Books

10.0 Objectives

After studying this unit you should be able to understand:

- The concept and features of process costing.
- Advantages and limitations of process costing.
- Preparing Process Account when there is no loss and no stock
- Treatment of wastage and scrap.
- Preparing Process Account when normal, abnormal loss and abnormal gain is given
- Treatment of fully completed stock.
- Methods of accounting joint products and by products.
- Calculation of unrealised profit.
- Valuation of work-in-progress under FIFO method and weight average cost method.

10.1 Introduction

Process costing is used where the production moves from one process or department to next until its final completion. There is a continuous production of identical units through a series of processing operations. Process is a check entity of an industrial unit in which specific work is done through the various well defined stages of production. This method of costing is used to know the cost of product in each process. A standard product passes through various stages of production called as processes. It is also called as continuous costing or average costing.

10.2 Definition and Characteristics

CIMA defines “The costing method is applicable to where goods or services result from a sequence of continuous or repetitive operations or processes Costs are averaged over the units produced during the period.” It is a method of costing in which costs are accumulated for each independent but inter related process. It is used in such industries where the material has to pass through two or more processes for being converted into final shape. This method of costing is useful in manufacturing concerns like steel, soap, chemicals, varnish, cotton textiles, oil refinery etc.

Charecteristics : The distinctive features are as follows :

1. Factory is divided into a number of processes, which will be called as cost centres.
2. All the costs of each cost centre are accumulated.
3. Manufacturing activity is carried on continuously by means of one or more process as run sequentially.
4. Each process has its own ledger, in which costs are charged.
5. The output of one process becomes input of another process till it become the final product.
6. Appropriate method is used in absorption of overheads to each cost centre i.e. process.
7. The total costs of each process are averaged over the total production of that process.
8. Normally output at the end may be a single product or a by product or a joint product.

10.3 Advantages and Disadvantages

Advantages :

1. The final product is of uniform type, hence the computation of average cost is easier.
2. The result of each process is more accurate, because indirect expenses are allocated to each process rationally.
3. Managerial control is easier because activity of each process is uniform.
4. The cost is calculated periodically and not at the time of completion.
5. Unit cost can be easily calculated through averaging of total cost, hence determination of price becomes easier.

Disadvantages :

1. The process costs are collected at the end of the period, they are in nature of historical costs, hence the disadvantages of historical costing are associated with process costing.
2. Average cost may not be accurate for control of the performance of a process.
3. Error in calculation of average cost is carried over upto the last process.
4. Apportionment of joint expenses results in further inaccuracies.

10.4 Preparation of Process Accounts - I

A seperate account is maintained for each process, because each process is a separate cost centre. Main elements of process costing are material, labour, direct expenses and production overhead. Total cost of production of each process is transferred to next process. Output of one process becomes the raw material of the next process.

Process account is prepared as follows :

Process Account

Particulars	Unit	Amount	Particulars	Unit	Amount
		Rs.			Rs.
To Direct Materials	-	-	By Transfer to Process B A/c	-	-
To Direct Labour		-			
To Direct Expenses		-			
To Factory Overhead		-			
	-	-		-	-

Process B Account

Particulars	Unit	Amount	Particulars	Unit	Amount
		Rs.			Rs.
To Process A (Transfer)	-	-	By Transfer to Finished stock*		
To Direct Materials		-			
To Direct Labour		-			
To Direct Expenses		-			
To Factory Overhead		-			
	-	-		-	-

*It is assumed that there are two processes only if; there are more processes then instead of “Transfer to finished sotck” “Transfer to next Process” will be shown.

Finshied Stock Account

Particulars	Unit	Amount	Particulars	Unit	Amount
		Rs.			Rs.
To Process B (Transfer)	-	-	By Sales	-	-
To Profit & Loss A/c (B/F)		-	By Profit & Loss Account (if any) (B/F)		-
	-	-		-	-
	-	-		-	-

10.5 Preparation of Process Accounts - II

Normally output of a product is not similar to input, because there is a loss during processing of the raw material. These losses may be (a) **scrap**- The scrap is a residue of raw material from a certian manufacturing operations that has relatively very nominal value. The examples are saw dust, outlined metals etc. It is shown on the credit side of Process Account, weight in unit coloumn and sale price in amount column. (b) **Wastage** - A portion of raw material is lost during processing and which has no value or negative value. Such loss may be physical. Loss due to evaporation, dust, smoke shrinks in a manufacturing process. It is shown on the credit side of the Process Account in quantity coloumn only. Here we are not categorising loss. It is mentioned in the next heading.

10.6 Treatment of Normal, Abnormal Wastages and Abnormal Gains

As explained in 10.5, there may be loss during processing, it may be classified into normal and abnormal. The accounting treatment is as follows:

- **Normal Loss**

The loss which can not be eliminated for example, part of cloth cut to make a shirt. Such loss is uncontrollable and unavoidable. It can be determined in advance on the basis of past experience. Such cost is regarded as a part of cost of output and it is absorbed by good unit. Sale value and quantity is credited to process Account in their respective column.

- **Abnormal Loss**

It is an excess part of loss over normal (standard) loss. It is caused due to unforeseen circumstances like accident, break down, etc. $\text{Abnormal Loss} = \text{Actual Loss} - \text{Normal Loss}$.

It cannot be anticipated in advance. The cost of abnormal loss will not affect the cost of good units. It is transferred to costing profit and loss Account, first of all cost of abnormal loss is transferred into a separate account and then after adjusting sale value of such loss, remaining amount is transferred to Costing P & L Account. We can easily understand the procedure by taking an example shown below.

If actual loss is less than normal loss, such excess is called as abnormal gain. It is due to wrong estimation of normal loss quantity. Cost of abnormal gain will not affect the cost of good production. Cost of abnormal gain units will be transferred to separate account by debiting it in process account and then after adjusting the notional value of sale, remaining amount is transferred to Costing Profit and Loss Account. We can understand it by following example :

Activity
Say Whether sale price of abnormal wastage will be shown in process Account. If yes on what side and If no, where is it shown?

Illustration: A product passes through two processes viz x and y. Prepare Process Account Normal, Abnormal Loss and Abnormal gain Account from the following :

Particulars	Process A Rs.	Process B Rs.
Units Introduced 5,000 @ 10 per unit	50,000	-
Material used	20,000	15,000
Direct Wages	10,000	5,000
Manufacturing Expenses	5,000	3,030
Percentage of normal loss on input	5%	10%
Sale price of normal loss per unit	1.80	2
Output in units	4,700	4,300

Process X Account

Particulars	Unit	Amount. Rs.	Particulars	Unit	Amount. Rs.
To Units introduced	5000	50,000	By Normal Wastage	2.50	450
To Material	-	20,000	By Abnormal wastage	50	890
To Wages	-	10,000	By Transfer to Process	4,700	83,660
To Manufacturing Exp	-	5,000	Y Account @ Rs. 17.80		
	5,000	85,000		5,000	85,000

$$\text{Cost of Abnormal Loss} = \frac{\text{Normal cost}}{\text{Normal output}} \times \text{Units of abnormal loss}$$

$$\text{Cost of Abnormal Loss} = \frac{(50,000 + 20,000 + 10,000 + 5,000 - 450)}{5,000 - 250} \times 50 = \text{Rs. 890}$$

Process Y Account

Particulars	Unit	Amt. Rs.	Particulars	Unit	Amt. Rs.
To Transfer from Process 'X'	4,700	83,660	By Normal Wastage	470	940
To Material		15,000	By Transfer to finished	4,300	1,07,500
To Wages		5,000	Stock A/c @ Rs. 25		
To Manufacturing Expenses		3,030			
To Abnormal gain @ Rs. 25	70	1,750			
	4,770	1,08,440		4,770	1,08,440

$$\text{Cost of Abnormal Loss} = \frac{(83,000 + 15,000 + 5,000 + 3030 - 940)}{4700 - 470} \times 70 = \text{Rs. 1750}$$

Process Loss Account

Particulars	Unit	Amt. Rs.	Particulars	Unit	Amt. Rs.
To Process X Account	50	890	By Cash (Sales) @ Rs. 1.80	50	90
			By Costing P & L A/c (B/f)	-	800
	4,770	1,08,440		4,770	1,08,440

Process Gain Account

Particulars	Unit	Amt. Rs.	Particulars	Unit	Amt. Rs.
To Normal Wastage	70	140	By Process Y Account	70	1750
Costing P & L A/c (B/f)	-	1610			
	70	1750		70	1750

10.7 Treatment of Fully Completed Stock

Sometimes all units of goods transferred from preceding process are not used in manufacturing of next process. It means remaining units of second process are valued at cost of first process and remaining units of third process at the cost of second process.

But some times, production of each process is transferred to separate account i.e. process stock account and may be issued to next process as and when required. Normally the valuation of such stock is made at current cost of that process.

10.8 Treatment of Joint and By Products

10.8.1 Joint Products

CIMA defines joint products as "two or more products separated in processing each having a sufficiently high sale value to merit recognition as a main product."

The process of a particular raw material may result in the output of two or more products of real economic importance and none of them can be treated as main product have significant value. Products which are not distinguishable from each other upto the point of separation and cost are common upto this point The examples of Joint products are :

Oil refining industry - Petrol, diesel, liquid Petroleum gas, Kerosene, Paraffin,
Lubricants, naphtha, coltar etc.

Coal Processing - Coke, Sulphate of amonia, benjol, gas etc.

Before seperation they have no seperate entity, additional costs may or may not be incurred to make then saleable.

10.8.2 Co-Products

A product is produced in different varieties, for example : furniture manufacturing organisation manufactures almirah, table, chair etc. Each of co-product may be requiring a diiferent type of raw material, but frequently use the common facilities of organisation. Joint products will arise from common process and can be identified only at split-off point, but co-product will not arise from the same process, it can be identified from starting point.

10.8.3 Accounting Methods

- (1) **Physical Units Method:** Allocation of total cost upto split-off point is apportioned on the basis of physical units like weight, volume. It is a simple, easy and technically sound method. Sale price of each joint product has no importance, and allocation is made irrespective of its quality.
- (2) **Market Value Method:** Joint costs are apportioned in the ratio of selling price of respective products. Ability to absorb the joint costs measured either by sale value or sale price. There are three methods of absorption by this method :
 - (i) **Market Value at seperation point:** Joint costs are apportioned on the basis of ratio of market value at separation point.
 - (ii) **Market value at finished stage:** Joint costs are apportioned to the joint products in the ratio of final selling price of each product. In this method further processing costs will be added to the respective joint products for determination of product costs.
 - (iii) **Reverse cost method:** Joint costs are apportioned in the ratio of net value of joint product at split-off point. This method is normally used. Net value is calculated as follows:

Activity

Give two examples of Joint Products.....

Give two examples of Co-Products.....

Statement showing approtionment of Joint costs

Particulars	Joint Products		
	X Rs.	Y Rs.	Z Rs.
Sales	-	-	-
(-) Estimated Profit	-	-	-
Total cost	-	-	-
(-) Selling & Distribution Expenses (if any)	-	-	-
Cost of goods sold	-	-	-
(-) Further processsing costs	-	-	-
Net value (i.e. basis of apportionment of joint costs)	-	-	-

- (iv) **Average unit cost method:** Joint costs upto the separation point are divided by the total units produced to arrive at average costs per unit of production.
- (v) **Survey method:** Weights are determined on the basis of technical survey to apportion the joint costs. This method is more scientific in which weights are arrived at after considering several factors.
- (vi) **Contribution margin method:** In this method, joint costs are segregated into fixed and variable, average variable costs upto split off point per unit is calculated and then total variable costs (pre & post) is calculated and now contribution per unit is arrived at after deducting total costs from selling price. The fixed costs are apportioned to the ratio of contribution margin to each joint product.
- (vii) **Standard costs method:** In this method joint costs are apportioned on the basis of standard costs set for the respective joint products.

10.8.4 By Products

A by-product is a secondary product which incidently results from the manufacturing operations of the main product. It has relatively small value. The accounting treatments are as follows:

- (i) **Standard cost method:** Standard costs of by product is determined on the basis of technical assessment and it is credited to the process account of the main product.
- (ii) **Opportunity method (replacement cost method):** By products are consumed in same organisation as raw material for other items in place of existing material in use. If such by product is purchased from open market, then cost of material replaced is the same. Hence, the process account of main product is credited by this opportunity cost.
- (iii) **Apportionment like joint products:** When the by-products have considerable value, then the by-products will be treated at equal footing, hence apportionment of joint costs are made by using physical unit method at the split-off point.
- (iv) **By product sale value added to main product sales :** In this method all costs are deducted from the combined sale value of main and by product.
- (v) **By product sales deducted from total cost:** In this method such sale value is deducted out of cost of production.
- (vi) **Credit of By product Net Sale Value to Process Account:** The sale value of by products after deducting direct selling costs and other process costs incurred after point of separation are credited to process account.
- (vii) **Other Income method:** When sale value is negligible then, sale value of by product is shown as other income in the profit and loss account. This method is criticised because valuation of stock of main product is inflated because no value is assigned to the by products. a charging to main products is not technically good.

(viii) **Reverse cost method** - Cost of by product is determined as follows :

Sale proceed of by products	- - -
(-) Estimated Profit	<u>---</u>
Total cost	- - -
(-) Selling & Distribution Expenses	<u>---</u>
Cost of sales	- - -
(-) Further processing costs after split-off point	<u>---</u>
Net amount (cost of by product)	- - -

10.8.5 Distinction Between Joint and By-Products :

1. Joint products have equal economic importance, while by-products have less economic importance.
2. Joint products have significant impact on total cost at the separation point, while by products have a very little impact on total costs.
3. Joint products are produced simultaneously, while by-products is just incidental to the production of the main product.

Activity

Write one major distinction between Joint & By Products.

10.8.6 Decision making for further processing of a joint product

When we have to take the decision, whether further processing is made or not, we have to look on incremental revenue and incremental costs. If incremental revenue is more than incremental costs product should be further processed. Apportionment of joint costs are not relevant in decision making regarding further processing of joint products after split-off point.

Illustration :

A company purchases crude oil. It does refining of the same. It results in four products at the split-off point : A, B, C and D. Product C is fully processed at the split-off point. The output at split-off point was:

Product A 3,00,000 gallons, Product B 1,00,000 gallons, Product C 50,000 gallons, Product D 50,000 gallons. The Joint cost of purchasing crude oil and processing it were Rs. 40,00,000. The company had no beginning and closing inventories. Sale of product 'C' were Rs. 20 lakhs. The total output of A, B and D is further refined and then sold.

		Further processing costs (Rs.)	Sales (Rs.)
Products	A	80,00,000	1,20,00,000
	B	34,00,000	42,00,000
	D	38,00,000	50,00,000

Sale value at split-off point was Product A Rs. 20,00,000, B Rs. 12,00,000 D Rs. 28,00,000.

you are required to show how joint cost of Rs. 40 lakhs was to be allocated between each product under (a) sale value at split-off (b) physical output and (c) estimated net realisable value .

Solution

(A) Statement showing Allocation of Joints costs on sale value at split-off stage.

Product	Sale value at split-off stage (Rs.)	%	Allocation of joint costs
A	20,00,000	25	10,00,000
B	12,00,000	15	6,00,000
C	20,00,000	25	10,00,000
D	<u>28,00,000</u>	35	10,00,000
	<u>80,00,000</u>	100	<u>40,00,000</u>

(B) Statement showing Allocation of Joint costs by using Physical output method.

Product	Physical output (gallons)	Proportion %	Allocation joint costs (Rs.)
A	3,00,000	60	24,00,000
B	1,00,000	20	8,00,000
C	50,000	10	4,00,000
D	<u>50,000</u>	<u>10</u>	<u>4,00,000</u>
	<u>5,00,000</u>	<u>100</u>	<u>40,00,000</u>

(C) Statement Showing Allocation of Joint costs by using Net Realisable value method:

Products	Sale revenue after further processing	Sale Revenue at the split-off point	Further Processing Costs	Net Realisable Value	Proportion (%)	Joint Costs Allocated
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
A	1,20,00,000	-	80,00,000	40,00,000	50	20,00,000
B	42,00,000	-	34,00,000	8,00,000	10	4,00,000
C	-	20,00,000	-	20,00,000	25	10,00,000
D	50,00,000	-	38,00,000	12,00,000	15	6,00,000
				<u>80,00,000</u>		<u>40,00,000</u>

10.9 Calculation of Inter Process Profit

Some times the output of one process is transferred to another at the market price of comparable goods or on transfer price. Thus, profit or loss made by each process is revealed and the efficiency of a process is not affected by the performance of the previous process. But the following difficulties arise due to transfer at a profit: - The closing stock of each process is valued at market value, hence profit of current year increases hypothetically. This system will show unrealised profits in respect of closing stock. Thus, it is necessary to eliminate such profits which are included in closing stocks at each stage at the end of the accounting period. A provision for such unrealised profit is made to workout real profit of the business. Through the following example, we can learn the procedure of calculating unrealised profit: -

Illustration

There are three distinct processes. The output of 'A' is charged to 'B' at a profit of 25% on cost, and the output of process 'B' is charged to process 'C' on a similar basis. The completed units are transferred into stock at price which gives process 'C' a profit of 25% on cost. From the following particulars, prepare Process Accounts and finished stock Account.

Process	A	B	C
	Rs.	Rs.	Rs.
Material consumed	1,40,000	2,10,000	70,000
Wages	2,10,000	1,40,000	2,80,000
Closing stock	70,000	1,40,000	2,10,000

Closing stock of finished goods amounts to Rs. 1,40,000. The remaining goods were sold for Rs. 12,60,000. Show also the actual realised profit, which is to be transferred to Profit and Loss Account. Assume that stock in each process has been valued at prime cost.

Solution :

Process 'A' Account

Particulars	Cost Rs.	Profit Rs.	Total Rs.	Particulars	Cost Rs.	Profit Rs.	Total Rs.
To Materials	140000	-	140000	By Process 'B' A/c	280000	70000	350000
To Wages	210000	-	210000				
Prime Cost	350000	-	350000				
(-) Closing Stock	70000	-	70000				
	280000	-	280000				
To P&L A/c	-	70000	70000				
(25% on cost)	280000	70000	350000				

Process 'B' Account

Particulars	Cost Rs.	Profit Rs.	Total Rs.	Particulars	Cost Rs.	Profit Rs.	Total Rs.
By Process 'A' A/c	280000	70000	350000	By Process 'C' A/c	504000	196000	700000
To Material	210000	-	210000				
To Wages	140000	-	140000				
Prime Cost	630000	70000	700000				
(-) Closing Stock	126000	14000	140000				
	504000	56000	560000				
To P&L A/c	-	140000	140000				
(25% on cost)	504000	196000	700000				

Process 'C' Account

Particulars	Cost Rs.	Profit Rs.	Total Rs.	Particulars	Cost Rs.	Profit Rs.	Total Rs.
By Process 'B' A/c	504000	196000	700000	By Finished Stock A/c	683200	366800	1050000
To Material	70000	-	70000				
To Wages	280000	-	280000				
Prime Cost	854000	196000	1050000				
(-) Closing Stock	170800	39200	210000				
	683200	156800	840000				
To P&L A/c	-	210000	210000				
(25% on cost)	683200	366800	1050000				

Finished Stock Account

Particulars	Cost Rs.	Profit Rs.	Total Rs.	Particulars	Cost Rs.	Profit Rs.	Total Rs.				
By Process 'B' A/c	683200	366800	1050000	By Sales	592107	667893	1260000				
To P&L A/c	-	350000	350000					By Cl. Stock	91093	48907	140000
(25% on cost)	683200	366800	1050000								

Valuation of Closing Stock

$$\text{Process 'B' cost} = \frac{6,30,000}{7,00,000} \times 1,40,000 = \text{Rs. } 1,26,000$$

$$\text{Profit} = (1,40,000 - 1,26,000) = \text{Rs. } 1,4000$$

$$\text{Process 'C' cost} = \frac{8,54,000}{10,50,000} \times 2,10,000 = \text{Rs. } 1,70,800$$

$$\text{Profit} = (2,10,000 - 1,70,800) = \text{Rs. } 39,200$$

$$\text{Process 'C' cost} = \frac{6,83,200}{10,50,000} \times 1,40,000 = \text{Rs. } 91,093$$

$$\text{Profit} = (1,40,000 - 91,093) = \text{Rs. } 48,907$$

The profit (in finished stock A/c) has been calculated after deducting Rs. 10,50,000 out of Rs. 14,00,000 (total of credit side of finished stock a/c = Rs. 14,00,000, After writing this on debit side of finished stock a/c as Total now B/F "To P&L A/c. Total of debit side of all the three columns of finished stock A/c is shown as total of credit side of the same account. Hence difference is cost of sale and profit on sales.

Total Profit = Process A + B + C + Finished stock A/c

$$70,000 + 1,40,000 + 2,10,000 + 3,50,000 = \text{Rs. } 7,70,000$$

Unrealised Profit :	Rs.
Profit in closing stock of Process A	Nil
Profit in closing stock of Process B	14,000
Profit in closing stock of Process C	39,200
Profit in closing stock of Process D	<u>48,907</u>
	<u>1,02,107</u>

10.10 Equivalent Production

Equivalent production units represent the output of a process in terms of completed units. The continuous nature of process implies that there always exists opening and closing work in progress. The percentage of completion with regard to material, wages and overheads are not 100% on these incompleting units. Hence equivalent units should be calculated separately, so as to calculate cost per completed unit.

When work-in-progress and its degree of completion is given, the following statements are prepared:

Step I - Statement of Equivalent Production

Step II - Statement of cost per Equivalent Unit

Step III - Statement of Apportionment of cost incurred during the period.

Step IV - Process Account : It is prepared either by using FIFO method or weighted Average cost method. In FIFO method it is assumed that opening WIP units are completed and transferred first and then the current period production is completed and transferred. In average cost method opening WIP costs are combined with the current period costs. Hence for determination of average cost, both costs are included and then the average rate is obtained.

These steps can be learnt through the following example;

Illustration

From the following information prepare : (a) Statement of Equivalent Production (b) Statement of

cost per Equivalent Unit (c) Statement of Apportionment (d) Process B Account.

The following data relates to process 'B'

- (i) Opening work-in-Progress 4,000 units.
degree of completion : Materials (100%)Rs. 24,000
Labour (60%) Rs. 14,400
Overhead (60%) Rs. 7,200
- (ii) Received during month of June from process A 40,000 units Rs. 1,71,000
- (iii) Expenses incurred in process 'B' during the month : Materials Rs. 80,000, Labour Rs. 1,38,230, overheads Rs. 69,120
- (iv) Closing work-in-progress 3,000 units.
Degree of Completion : Materials 100%, Labour and overhead 50%.
- (v) Unit scrapped - 4,000
Degree of Completion : Materials 100%, Labour and overheads 80%.
- (vi) Normal Loss : 5% of current input
- (vii) Scrap realised Rs. 2.00 each
- (viii) Completed units are transferred to warehouse, Use FIFO method.

Solution

(A) Statement Showing Equivalent Units

Input	Particulars	Output	Equivalent Production					
			Materials		Labour		Overheads	
			%	Units	%	Units	%	Units
4,000	Opening WIP	4,000	-	-	40	1,600	40	1,600
40,000	Completed & Transferred to warehouse	33,000	100	33,000	100	33,000	100	33,000
	Closing WIP	3,000	100	3,000	50	1,500	50	1,500
	Normal Loss	2,000	-	-	-	-	-	-
	Abnormal Loss	2,000	100	2,000	80	1,600	80	1,600
	Equivalent Units			38,000		37,700		37,700
44,000		44,000						

(C) Statement of Apportionment

	Total Cost	Cost per Unit
Materials Cost		
From Previous process	1,71,000	
Introduced	80,000	
(-) Sale of normal loss(2 X 2,000)	4,000	
2,47,000 / 38,000	2,47,600	6.50
Labour	1,38,230	
Overheads	69,120	
2,07,350 / 37,700	2,07,350	5.50
		12.00

- (A) Total cost of 37,000 completed units transferred to warehouse:

Opening WIP cost	Rs. 45,600
Labour and overheads (1,600 X 5.50)	Rs. 8,800
Completed Units (33,000 X 12)	<u>Rs. 3,96,000</u>
	<u>Rs. 4,50,400</u>

(B) Cost of Closing WIP

Materials (3,000 X 6.50)	Rs. 19,500
Wages and overheads (1,500 X 5.50)	<u>Rs. 8,250</u>
	<u>Rs. 27,750</u>

(C) Cost of Abnormal loss

Materials 2,000 X 6.50	13,000
Wages and overheads 1,600 X 5.50	<u>8,800</u>
	<u>21,800</u>

(D) **Process 'B' Account**

Particulars	Units	Amount Rs.	Particulars Rs.	Units	Amount Rs.
To Opening WIP	4,000	45,600	By Normal Loss	2,000	4,000
To Transfer from 'A'	40,000	1,71,000	By Completed Units	37,000	4,50,400
To Materials	-	80,000	By Closing WIP	3,000	27,750
To Wages	-	1,38,230	By Abnormal Loss	2,000	21,800
To Overheads	-	69,120			
	44,000	5,02,950		44,000	5,02,950

10.11 Summary

Processing costing is applicable where production moves from one process to the next until final output comes out. It is used basically in industries like chemicals, oil refining, textile etc., The costs are accumulated to each process. The unit cost is the average cost of process for a given period. The process losses may arise and it is categorised into Normal Loss, Abnormal Loss. If output of one process is transferred to another at the market price, then closing stock of each process is valued at market price, hence profit of current year increases hypothetically. A provision for unrealised profit is made for such. When there is work-in-progress at the end, the WIP is converted into equivalent fully completed units so as to derive correct cost of production. When two or more products arise simultaneously in the course processing and has a significant sale value, it is called "joint products". Where a product which arises incidentally and has a relatively small value in comparison of the main product is called as "by-product."

10.12 Key Words

- **Process costing** : A standard product that passes through various stages of production is called process.
- **Normal Loss**: The loss, which is expected during the normal course of operations, and due to unavoidable reasons is called normal loss.
- **Abnormal Loss** : The loss, which is above the normal rate of loss for the process. It is not included in the process costs but removed from the appropriate process account and separately reported.
- **Abnormal Gain** : If actual loss is less than pre-determined loss, it is considered abnormal gain.

- **Equivalent Production** - A notional quantity of completed units as a substitute of incomplete units in progress.
- **Joint Product** : When two or more products arise simultaneously in the course of processing and each have sufficient sale value.
- **By-Product** : When a product or products produced in addition to the main product incidently during course of processing and which have relatively small sales value.

10.13 Self Assessment Test

1. What do you mean by process costing. ? Explain its advantages and disadvantages.
2. Write down the characteristics of process costing.
3. Explain Normal loss, Abnormal loss and Abnormal gain and state how they should be dealt in process cost accounts. ?
4. What is “equivalent unit”. Explain briefly the procedure for valuation of work-in-progress.
5. When output of one process is transferred to another at market price, how you will deal with unrealised profits in respect of closing stock. ?
6. Distinguish between “Joint and By-Products.”
7. What are the different methods of accounting for By-Products? Discuss.
8. Discuss the different methods of allocating joint costs, stating their merits.
9. While taking decision for further processing after split-off point, what should be kept in mind.?
10. A product passes through two processes viz. M and N. prepare Process Accounts, Abnormal Waste and Abnormal gain Account from the following :

	Process M	Process N
	Rs.	Rs.
Unit introduced 1000 at a cost of	20,000	-
Material Consumed	24,000	12,000
Direct Labour	28,000	16,000
Normal Loss on input	5%	10%
Manufacturing Expenses	8,000	8,567
Scrap Value of Normal Wastages (per 100 units)	40	50
Output in units	9,400	8,500

11. Three products A, B, and C are produced by a business man 2,000 units, 3,000 units and 1,000 units. Joint costs of Rs. 25,000. The market prices of products are as follows :

Product	Additional further processing costs after split-off Point (Rs.)	Market price at split-off point (Rs. per unit)	Selling Price After Processing (Rs. per unit)
A	4,000	14.00	10
B	10,000	5.00	20
C	4,000	7.00	8

Apportion the Joint costs by (i) market value at the point of separation (ii) sale value after further processing (iii) Net realisable value method.

12. From the following information prepare statement of equivalent production, statement of cost and also prepare process account by using FIFO method.

(i) Opening WIP 2000 units

Materials	(100 % complete)	Rs. 7,500
Wages	(60 % complete)	Rs. 3,000
Overhead	(60 % complete)	Rs. 1,500

(ii) Units introduced into this process 8,000 and process costs for the period are materials Rs. 1,00,000, wages Rs. 78,000, overheads Rs. 39,000.

(iii) Closing WIP 2,000 units which are completed 100% for materials, 50% for wages and overhead.

(iv) 8,000 units are transferred to next process.

10.14 Reference Books

Ghosh T. P., *Cost Accounting*.

Saxena & Vashist, *Cost Accounting*.

Gorden Shillinglaw, *Cost Accounting Analysis and control*.

Unit- 11 Management Accounting

Unit Structure

- 11.0 Objectives
- 11.1 Introduction
- 11.2 Accounting as an Information System
- 11.3 Management Accounting
- 11.4 Nature
- 11.5 Scope
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11.0 Objectives

After studying this unit you should be able to understand:

- Meaning of management accounting
- Relationship of management accounting to cost accounting and financial accounting
- Origin of management accounting
- Characteristics and Scope of management accounting
- Functions and tools and techniques of management accounting
- Limitations of management accounting

11.1 Introduction

Accounting is being used in the business world and is in existence in some form since the inception of business. When the business grew in size and became complex, accounting began to take a systematic shape. In the changed business scenario, various new requirements such as further planning, evaluation of plan and policies, cost control, delegation of authority and responsibility, timely decisions etc. have emerged on account of increasing size of business, increased production level, technical complexities, government interference and public awareness towards social responsibilities of industries. Management Accounting has originated to serve the managers and to assist them in meeting their needs. Management Accounting is not a separate accounting. It is only the use of accounting in solving the problems of management and taking timely decision.

11.2 Accounting as an Information System

Accounting is a part of information system of an enterprise. It serves the purpose of providing financial information relating to a business. Such information is provided to people who have an interest in

the organization, such as shareholders, managers, creditors, debenture holders, bankers, tax authorities and others. Broadly speaking, on the basis of the type of accounting information and the purpose for which such information is used, accounting may be divided into three categories:

1. Financial Accounting (or General Accounting);
2. Cost Accounting; and
3. Management Accounting.

11.2.1 Financial Accounting

Financial accounting is mainly concerned with recording business transactions in the books of accounts for the purpose of presenting final accounts. It is defined as “*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.*” The information supplied by financial accounting is summarized in the following two statements at the end of the accounting period, generally one year.

- (a) *Profit and Loss Account* showing the net profit or loss during the period.
- (b) *Balance Sheet* showing the financial position of the firm at a point of time.

The objective of financial accounting is to provide information to external parties such as shareholders, creditors, employees, potential investors, government agencies, etc.

11.2.2 Cost Accounting

Cost accounting is a branch of accounting which specializes in providing information about the detailed cost of products or services being supplied by the undertaking. Compared with financial accounting, cost accounting is relatively a recent development. It has primarily developed to meet the needs of management. Profit and Loss Account and Balance Sheet are presented to management by the financial accountant. But modern management needs much more detailed information than supplied by these financial statements. Cost accounting provides detailed cost information to various levels of management for efficient performance of their functions. The information supplied by cost accounting acts as a tool of management for making optimum use of scarce resources and ultimately adds to the profitability of business.

The terms ‘*costing*’ and ‘*cost accounting*’ are often used interchangeably. The Chartered Institute of Management Accountants (CIMA) of UK has defined costing as “*the techniques and processes of ascertaining costs*”. Thus, costing simply means cost finding by any process or technique. It consists of principles and rules which are used for determining:

- (a) The cost of manufacturing a product; e.g., motor car, furniture, chemical, paper, steel, etc. and
- (b) The cost of providing a service; e.g., electricity, transport, education, etc.

Cost accounting information is mainly for internal use i.e. for management. It is not to be provided to external parties such as shareholders, creditors, potential investors, etc. Neither do they have any claim on this information, excepting government agencies, to whom cost information may have to be submitted.

11.3 Management Accounting

11.3.1 Meaning and Definition

The term ‘management accounting’ is the modern concept of accounts as a tool of management. It is a broad term and is concerned with all such accounting information that is useful to management. In simple

words, the term management accounting is applied to the provision of accounting information for management activities such as planning, controlling and decision making, etc.

According to the **Institute of Chartered Accountants of England**, “*any form of accounting which enables a business to be conducted more efficiently*” may be regarded as management accounting. Management accounting information can help managers identify problems, solve problems and evaluate performance.

The Institute of Cost and Works Accountants of India (ICWAI) has defined management accounting as “a system of collection and presentation of relevant economic information relating to an enterprise for planning, controlling and decision making”.

The Chartered Institute of Management Accountants (CIMA) of UK has given a very authoritative and comprehensive definition as follows:

“Management Accounting is an integral part of management concerned with identifying, presenting and interpreting information used for-

- (i) formulating strategy;
- (ii) planning and controlling activities;
- (iii) decision-making;
- (iv) optimizing the use of resources;
- (v) disclosure to shareholders and others external to the entity;
- (vi) disclosure to employees; and
- (vii) safeguarding assets.”

According to **National Association of Accountants (USA)**, management accounting is “*the process of identification, measurement, accumulation, analysis, preparation and communication of financial information used by management to plan, evaluate and control within the organisation and to assure appropriate use and accountability for its resources.*”

These definitions make it clear that management accounting plays a vital role in providing the necessary information to managers in performing their functions of planning, controlling, organizing and decision making. Management accounting should serve as a decision support system to all levels of management.

11.3.2 Relationship of Management Accounting to Cost Accounting and Financial Accounting

The three types of accounting, i.e., financial accounting, cost accounting and management accounting are closely linked. The management accounting uses the principles and practices not only of cost accounting but also of financial accounting. Information provided by financial accounting proves extremely useful for management accounting. For example, Profit and Loss Account and Balance Sheet become the basis of ratio analysis and comparative financial statements, etc., which are used by the management accounting as important tools of planning and control. Financial accounting records also become basis of preparing detailed cost computation and reports. Cost accounting is a more detailed application of financial accounting and provides detailed cost information about products, services, departments, etc. This information is used by management accounting for planning, controlling and decision making purposes. Following fig. shows the evolution of management accounting and its relationship to cost accounting and financial accounting:

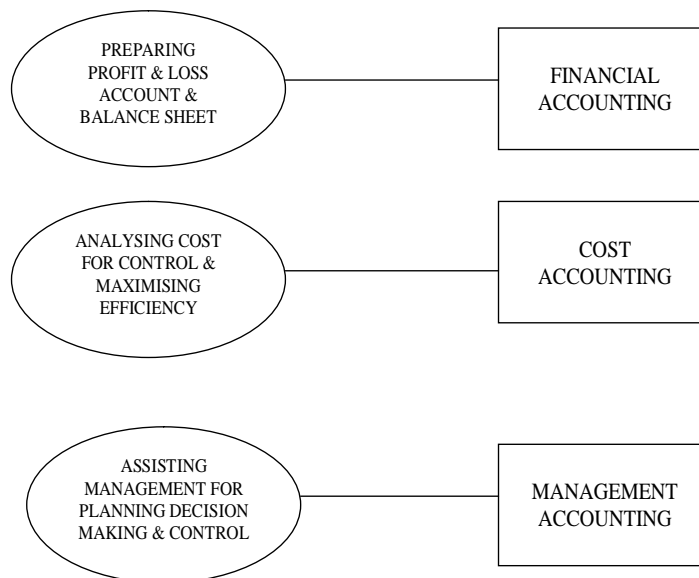


Fig. Relationship of Financial, Cost and Management Accounting

11.3.3 Management Accountant is The Controller

In USA, the management accountant is called '*Controller*' or '*Financial Controller*' and is a part of the top management team.

Management accountant plays a very important role in an organisation. He analyses and interprets accounting information and meets the informational needs of the management at different levels. In an organisation, a management accountant generally performs a staff function i.e. advisory role. But if he is permitted to participate in planning and decision making, he is a part of the management team and thus becomes the part of the line function. It is very important that status of the management accountant in the organisation is clearly defined so that the scope of his work and responsibilities are accordingly determined.

11.3.4 Origin

The basic principles of management accounting emerged during the period 1400 to 1600 in the form of standards for materials, employee productivity, job cost system and budgets. But no standardized management accounting was in practice until 1885 when Henry Metcalf published the '*Cost of Manufacture*'. The real growth of management accounting was in 20th century in USA due to the emergence of large and integrated companies such as DuPont and General Motors. A demand was created for measuring the performance of different parts of the business. Measures such as return on investment, performance evaluation systems, innovations in costing, etc. were developed during the latter half of the 20th century.

In fact the growth of management accounting is because of the need to overcome the limitations of financial and cost accounting.

- **Limitations of Financial Accounting**

Financial accounting is extremely useful to different categories of users. But it also suffers from the following limitations:

1. **Shows only overall performance:** Financial accounting provides information about profit, loss, cost, etc. of the collective activities of the business as a whole. It does not give data regarding costs by departments, products, processes and sales territories, etc.
2. **Historical in nature:** Financial accounting is historical, since the data are summarized only at the end of the accounting period. There is no system of computing day-to-day cost and also computing pre-determined costs.

3. **No performance appraisal:** In financial accounting, there is no system of developing norms and standards to appraise the efficiency in the use of materials, labour and other costs by comparing the actual performance with what should have been accomplished during a given period of time.
4. **No material control system:** Generally, there is no proper system of control of materials losses which may arise in the form of obsolescence, deterioration, excessive scrap, misappropriation, etc.
5. **No labour cost control system:** In financial accounting, there is no system of recording loss of labour time; i.e., idle time. Labour cost is not recorded by jobs, processes or departments and as such no system of incentives may be easily used to compensate workers for their above-standard performance.
6. **No proper classification of costs:** In financial accounting, expenses are not classified into direct and indirect, fixed and variable and controllable and uncontrollable. These classifications have utility of their own.
7. **No analysis of losses:** Financial accounting does not fully analyse the losses due to idle time, idle plant capacity, inefficient labour, sub-standard materials, etc. Thus, exact causes of the losses are not known.
8. **Inadequate information for price fixation:** Costs are not available as an aid in determining prices of products, services or production orders.
9. **No cost comparison:** Comparison is the foundation of modern management control. But financial accounting does not provide data for comparison of costs of different periods, different jobs or departments, or sales territories, etc.
10. **Fails to supply useful data to management:** Financial accounting fails to supply useful data to management for taking various decisions like pricing of products, make or buy, selection of the most profitable product mix, etc.

11.4 Nature

It is clear from the definitions of management accounting that it is concerned with accounting data that is useful in decision making. The main characteristics of management accounting are as follows:

1. **Useful in decision making:** The essential aim of management accounting is to assist management in decision making and control. It is concerned with all such information which can prove useful to management in decision making.
2. **Financial and cost accounting information:** Basic accounting information useful for management accounting is derived from financial and cost accounting records.
3. **Internal use:** Information provided by management accounting is exclusively for management for internal use. Such information is not to be given to parties external to the business like shareholders, creditors, banks, etc.
4. **Purely optional:** Management accounting is a purely voluntary technique and there is no statutory obligation. Its adoption by any firm depends upon its utility and desirability.
5. **Concerned with future:** As management accounting is concerned with decision making, it is related with the future because decisions are taken for future course of action and not the past.
6. **Flexibility in presentation of information:** Unlike financial accounting, in management accounting there are no prescribed formats for presentation of information to the management. The form of presentation of information is left to the wisdom of the management accountant who decides which

is the most useful format of providing the relevant information, depending upon the utility of each type of form and information.

Activity

Management Accounting is useful for

11.5 Scope

Management accounting has a very wide scope. It includes not only financial accounting and cost accounting but also all types of internal financial controls, internal audit, tax accounting, office services, cost control and other methods and control procedures. Thus scope of management accounting, *inter alia* includes the following:

1. **Financial accounting:** Financial accounting provides basic historical data which helps the management to forecast and plan its financial activities for the future. Thus for an effective and successful management accounting, there should be a proper and well designed financial accounting system.
2. **Cost Accounting:** Many of the techniques of cost control like standard costing and budgetary control and techniques of profit planning and decision making like marginal costing, CPV analysis and differential cost analysis are used by the management accounting.
3. **Budgeting and forecasting:** In order to plan business activities for the future, forecasting and budgeting play a very significant role. Forecasting helps in the preparation of budgets and budgeting helps management accountant in exercising budgetary control.
4. **Tax planning:** In order to take advantage of various provisions of tax laws, management accountant has to depend upon tax accounting and planning to minimize its tax liabilities and save more funds for the business.
5. **Reporting to management:** For effective and timely decisions, there should be a system of prompt and intelligent reporting to management. But routine and special reports are prepared for submission to top management, middle order management and operating level management depending on their requirements.
6. **Cost control procedures:** Any system of management accounting is incomplete without effective cost control procedures like inventory control, labour control, overhead control, budgetary control, etc.
7. **Statistical tools:** Various tools of analyzing and presenting statistical data like graphs, tables, charts, etc., are used in preparing reports for use by the management.
8. **Internal control and internal audit:** Management accountant heavily depends on internal financial controls like internal audit and internal check to plug loop holes in the financial system of the concern.
9. **Financial analysis and interpretation:** Management accountant employs various techniques to analyse and interpret financial data to make it understandable and useable to the management. Such analysis helps management to achieve objectives of management in a more efficient manner.
10. **Office services:** Management accountant is expected to maintain and control office routines and procedures like filing, copying, communicating, electronic data processing and other allied services.

11.6 Functions

The main functions of management accounting are as follows:

1. **Planning:** Information and data provided by management accounting helps the management to forecast and prepare short-term and long-term plans for the future activities of the business and formulate corporate strategy. For this purpose management accounting techniques like budgeting, standard costing, marginal costing, probability, correlation and regression, etc. are used.
2. **Coordinating:** Management accounting techniques of planning also help in coordinating various business activities. For example, while preparing budgets for various departments like production, sales, purchases, etc., there should be full coordination so that there is no contradiction. By proper financial reporting, management accounting helps in achieving coordination in various business activities and accomplishing the set goals.
3. **Controlling:** Controlling is a very important function of management and management accounting helps in controlling performance by control techniques such as standard costing, budgetary control, control ratios, internal audit, etc.
4. **Communication:** Management accounting system prepares reports for presentation to various levels of management which show the performance of various sections of the business. Such communication in the form of reports to various levels of management helps to exercise effective control on various business activities and successfully running the business.
5. **Financial analysis and interpretation:** In order to make accounting data easily understandable, the management accounting offers various techniques of analyzing, interpreting and presenting this data in non-accounting language so that every one in the organisation understands it. Ratio analysis, cash flow and funds flow statements, trend analysis, etc., are some of the management accounting techniques which may be used for financial analysis and interpretation.
6. **Qualitative information:** Apart from monetary and quantitative data, management accounting provides qualitative information which helps in taking better decisions. Quality of goods, customers and employees, legal judgements, opinion polls, logic, etc., are some of the examples of qualitative information supplied and used by the management accounting system for better management.
7. **Tax policies:** Management accounting system is responsible for tax policies and procedures and supervises and coordinates the reports prepared by various authorities.
8. **Decision-making:** Correct decision-making is crucial to the success of a business. Management accounting has certain special techniques which help management in short-term and long-term decisions. For example, techniques like marginal costing, differential costing, discounted cash flow, etc., help in decisions such as pricing of products, make or buy discontinuance of a product line, capital expenditure, etc.

11.7 Tools and Techniques

Management accounting uses a number of tools and techniques to help management in achieving business goals. Some of the important tools and techniques are as follows:

1. Budgeting.
2. Standard costing and variance analysis.
3. Marginal costing and cost volume profit analysis.
4. Ratio analysis.
5. Comparative financial statements.

6. Differential cost analysis.
7. Fund flow statement.
8. Cash flow statement.
9. Responsibility accounting.
10. Accounting for price level changes.
11. Statistical and graphical techniques.
12. Discounted cash flow.
13. Risk analysis.
14. Value analysis.
15. Work study, etc.

Activity

Specify any two tools & techniques used in Management Accounting.

11.8 Limitations

Management accounting is a very useful tool of management. However, it suffers from certain limitations as stated below:

1. **Based on historical data:** Management accounting helps management in making decisions for the future but it is mainly based on the historical data supplied by financial accounting and cost accounting. This implies that historical data is used for making future decisions. The accuracy and dependability of such data will leave their mark on the quality of management decisions. In other words, if past data is not accurate, management decisions may not be correct.
2. **Lack of wide knowledge:** The management accountant should have knowledge of not only financial and cost accounting but also many allied subjects like economics, management, taxation, statistical and mathematical techniques, etc. Lack of knowledge of these subjects on the part of management accountant limits the quality of management accounting.
3. **Complicated Approach:** Management accounting provides mass of data using various accounting and non-accounting subjects for decision making purpose. But sometimes management avoids this complicated and lengthy course of decision making and makes decisions based on intuition. This leads to unscientific approach to decision making.
4. **Not a substitute of management:** Management accounting only provides information to management for decision making but it is not a substitute of management and administration.
5. **Costly system:** The installation of management accounting system in an organisation is a costly affair as it requires a wide net-work of management information system, rules and regulations. All this requires heavy investment and small concerns may not be able to afford it.
6. **Developing stage:** Management accounting is a relatively recent development and it has not fully developed as yet. This limits the utility of this system to management in making perfect and correct decisions.
7. **Lack of objectivity:** The interpretation of information provided by management accounting may be influenced by personal bias of the interpreter of data. This tells upon the quality of managerial decisions.

8. **Resistance from staff:** The existing accounting and management staff may not welcome the introduction of management accounting system. This may be because they look at the system with suspicion that it will add to their work and responsibilities.

11.9 Summary

Management accounting has originated to serve the managers and to assist them in meeting their needs. In due course of time, accounting was being used as management tool and that in now-a-days called “management accounting”. It was developed as branch of accounting but separate from financial accounting. Though management accounting is not a separate accounting, it is only the use of accounting in solving the problems of management and taking timely decisions.

11.10 Key Words

- **Financial Accounting** Financial Accounting is mainly concerned with recording business transaction in the books of accounts for the purpose of presenting final accounts.
- **Cost Accounting** Cost Accounting is a branch of accounting which specializes in providing information about the detailed cost of products or services being supplied by the undertaking.
- **Management Accounting** Management Accounting denotes every accounting technique which may be useful to management in discharging its function viz planning, organising, directing co-ordinating, communicating and controlling.

11.11 Self Assessment Test

1. Define management accounting and explain its objectives.
2. What are the functions of management accounting?
3. Explain the nature and scope of management accounting.
4. Explain the relationship of management accounting with financial accounting and cost accounting.
5. A student planning a career in management commented “Look, I am going to be a manager, so why do not we just leave the accounting to the accountants.” Discuss this comment.

11.12 Reference Books

Maheshwari S.L., *Management Accounting*

Maheshwari Mittal., *Management Accounting*

Goyal Man Mohan, *Management Accounting*

Unit- 12 Standard Costing and Variance Analysis

Unit Structure

- 12.0 Objectives
- 12.1 Introduction
- 12.2 Need of Standard Costing
- 12.3 Aims and Explanations
- 12.4 Variance Analysis Cycle
- 12.5 Types of Variances
- 12.6 Relationship between Variances
- 12.7 Summary
- 12.8 Key Words
- 12.9 Self Assessment Test
- 12.10 Reference Books

12.0 Objectives

By the end of this unit you should be able to:

- Describe the nature and purpose of standard costing;
- Identify the main steps involved in implementing and operating a standard costing system;
- Calculate standard costing performance measures;
- Calculate sales, direct materials, direct labour, variable overhead, and fixed overhead variances;
- Prepare a standard cost operating statement;
- Outline the importance of standard costing and variance analysis.

12.1 Introduction

Costing is the determination of the value of resources used for specified goods or services. The major purposes of costing are:

First to determine what amount of resources were required to provide the goods or services. Second is to help to resource usage through the use of budgets that clearly identify managers' work responsibility. It is the second purpose that is considered in the following discussion:-

Methods of Costing Identified in Budgets

Budget figures may be based on actual, budgeted, or standard costs. These categories are not mutually exclusive. For example, while a standard cost is a budgeted cost, a budgeted cost is not always a standard cost. An actual cost may or may not be the budgeted cost.

Budgets based on actual costs reflect expense anticipated or planned for the level of resource use. Budgeted costs are generally described as the best estimate or planning about what should be allowed for next or upcoming activity. To establish budgeted costs, actual costs of the previous year, information from department heads about where resources might be more efficiently and effectively used, and the decision about the need to save resources are often considered. The main object of standard costs is to calculate the costs that reflect the effective and efficient use of resources.

12.2 Need of Standard Costing

Standard costing is an important subtopic of cost accounting. Standard costs are usually associated with a manufacturing company's costs of direct material, direct labor, and manufacturing overhead. Standard costs are costs established through identifying an objective relationship between specified inputs and budgeted outputs.

12.3 Aims and Explanations

A standard cost is the planned cost of manufacturing a single unit or a number of product units during a planned period in the immediate future. It is the predetermined cost of a product under current and / or expected operating conditions.

A standard is a scale for the measurement of performance. Standards are found everywhere in the hotels, hospitals, constructions etc. Standards are also widely used in managerial accounting where they relate to the quantity and cost of inputs used in manufacturing goods and producing services. Actual quantities and actual costs are then compared with the set standards. In case of variance or deviations, managers investigate the differences. The purpose is to find the problem and then to solve it to avoid its reoccurrence and this process can also be explained as management by exception.

Standard costs are specifically related to thorough analysis of cost at both the ends i.e. at various planning departments and workplaces as well. To understand it better suppose, in the factory of a company that produces high-quality purses for women, standard costs are used for materials and labor. To make out the standard usage of fabric for a single purse, the cutting possibilities are analyzed in the laboratory, where attention can be given to how much fabric must be used if the purse is cut as specified. At this point, the focus is not on how many minutes are needed by an experienced cutter to perfectly cut the fabric so as to minimize usage. Rather, there is experimentation in the ways of cutting and the time required for each way considered. Experimentation continues until the most economical combination of fabric usage and cutting time is established. That combination is likely to be modified to take account of less than perfect conditions in the factory.

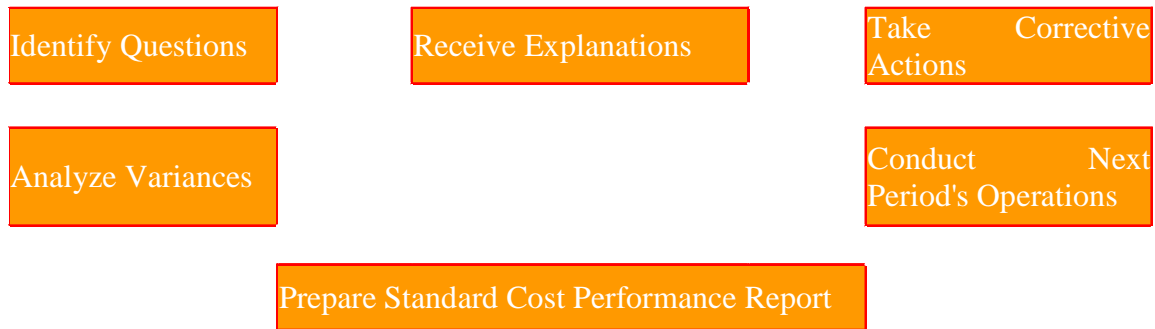
The aim of the department responsible for setting standard costs is to provide realistic standards. Staff and labors are to be motivated to achieve result with specified standards. If standards are not reasonable either too high or too low the output expected is not achieved which on another hand will cause labor dissatisfaction and discouragement which results into poor work quality. If standards are too easy to achieve, there may be an unnecessary waste of resources.

Standard costing finds its application in all types of business activity. The process described briefly above can be applied, for example, for processing documents in a banking or financial services business.

12.4 Variance Analysis Cycle

This basic approach to identifying and solving problems is explained in the variance analysis cycle, the cycle begins with the preparation of standard cost performance reports in the accounts department. These reports shows the variances, which are actually the differences between achieved or actual results and what should have occurred according to the planned standards and if there is any difference then the question arises why this variance occurred or it is more than the previous years figure. The significant differences termed as variances are examined deeply to understand their root causes so that precautionary actions can be taken before the next operational period. Now the new cycle starts with the preparation of a new standard cost performance for the current period keeping in mind the old variances and the reasons for the same. The goal is to improve operations - not to find blame.

Variance Analysis Cycle



Rather than assigning the actual costs to resources (direct material, direct labor) and manufacturing overhead to a product, many producers assign the standard cost. This means that a manufacturer's stock and cost of goods sold will begin with amounts reflecting the standard costs, not the actual costs, of a product. Manufacturers, of course, still have to pay the actual costs. As a result there are almost always differences between the actual costs and the standard costs, and those differences are known as **variances**.

Standard costing and the related variances is a valuable management tool. If a variance arises, management becomes aware that manufacturing costs have differed from the standard (budgeted, expected or planned) costs.

- If actual costs are greater than standard costs the variance is unfavorable. An unfavorable variance tells management that if everything else remains stable the company's actual profit will be less than planned.
- If actual costs are less than standard costs the variance is favorable. A favorable variance tells management that if everything else remains stable the actual profit shall be more than the planned profit.

Variance analysis is usually associated with explaining the difference (or variance) between actual costs and the standard costs allowed for the standard output. For instance, the difference in materials costs can be divided into a materials price variance and a materials usage variance. The difference between the actual direct labor costs and the standard direct labor costs can be divided into a rate variance and an efficiency variance. The difference in manufacturing overhead can be divided into spending, efficiency, and volume variances. Mix and yield variances can also be calculated. All these variances are explained in detail in this chapter.

Variance analysis helps management to understand the present costs and then to plan and control future costs.

Variance analysis is also used to explain the difference between the actual sales and the budgeted sales. Examples include sales price variance, sales quantity (or volume) variance, and sales mix variance

The sooner that the accounting system reports a variance, the sooner that management can direct its attention to the difference from the planned amounts.

Usually there will be two variances computed for each input:

<u>Input for Product</u>	<u>Variance #1</u>	<u>Variance #2</u>
Direct material	Price (or cost)	Usage (or quantity)
Direct labor	Rate (or cost)	Efficiency(or quantity)
Manufacturing overhead-variable	Spending	Efficiency
Manufacturing overhead-fixed	Budget	Volume

- **Sample Standards Table**

Let's assume that Ram runs a retail outlet that sells cotton pants in two sizes. Ram suggests that you get into the manufacturing side of the business, so on January 1, 2010 you start up a pants production company called Cotton Works. Using the best information at hand, the two of you compile the following estimates to use as standards for 2010

- **Standards Table for Cotton Works**

		Large Pants	Small Pants
Cotton material needed for each pants*		2.0 mts.	1.3 mts.
Time required to cut and sew each pants		0.3 hr.	0.2 hr.
Cotton cost per square meter	Rs.3		
Labor cost per hour (includes payroll taxes)	Rs.10		
Electricity and supplies used per hour of labor	Rs.2		
Rent for space per month (includes heat/air)	Rs.600		
Rent for equipment per month	Rs.100		
Planned production for the year 2010		5,000 pants	3,000 pants
Planned meters of cotton needed for 2010	13,900 mts.	10,000 mts.	3,900 mts.
Planned hours to cut and sew in 2010	2,100 hr.	1,500 hr.	600 hr.

*The cotton comes on rolls that are one meter wide, so one meter (mts.) of cotton is the same as one square meter of cotton.

The pants are easy to produce, and no pants are ever left unfinished at the end of any given day. This means that your company never has **work-in-process inventory**.

12.5 Types of Variances

- **Direct Materials Purchased: Standard Cost and Price Variance**

Direct materials refers to raw materials that are directly and clearly identifiable into a product. In your pants business the direct material is the cotton. (In a food manufacturer's business the direct materials are the ingredients such as flour and sugar etc.)

Cotton Works purchases its cotton from a local supplier with terms of net 30 days, FOB destination. This means that ownership to the cotton passes from the seller to Cotton Works when Cotton Works receives the material. When the cotton arrives, Cotton Works will account the cotton received in its Direct Materials Inventory at the standard cost of Rs.3 per meter (see standards table above) and will record the liability at the actual cost for the amount received. Any difference between the standard cost of the material and the actual cost of the material received is recorded as a purchase price variance.

- **Examples of Standard Cost of Materials and Price Variance**

Let's assume that on January 2, 2010 Cotton Works placed an order for 1,000 meters of cotton at Rs.2.90 per meter. On January 8, 2010 Cotton Works receives 1,000 meters of cotton and an invoice for the actual cost of Rs.2,900. On January 8, 2010 Cotton Works becomes the owner of the material and has a liability of payment to the seller. On January 8 Cotton Works' Direct Materials stock is increased by the standard cost of Rs.3,000 (1,000 meters of cotton at the standard cost of Rs.3 per meter), Accounts

Payable is credited for Rs.2,900 (the actual amount owed to the supplier), and the difference of Rs.100 is credited to Direct Materials Price Variance. In journal format the entry looks like this:

Date	Account Name	Debit	Credit
Jan. 8, 2010	Direct Materials Inventory	3,000	
	Accounts Payable		2,900
	Direct Materials Price Variance		100

The Rs.100 credit to the price variance account shows immediately (when the cotton arrives) that the company is experiencing actual costs that are more favorable than the planned, standard cost.

In February, Cotton Works orders 3,000 meters of cotton at Rs.3.05 per meter. On March 1, 2010 Cotton Works receives the 3,000 meters of cotton and an invoice for Rs.9,150 due in 30 days. On March 1, the Direct Materials Inventory account is increased by the standard cost of Rs.9,000 (3,000 meters at the standard cost of Rs.3 per meter), Accounts Payable is credited for Rs.9,150 (the actual cost of the cotton), and the difference of Rs.150 is debited to Direct Materials Price Variance as an unfavorable price variance:

Date	Account Name	Debit	Credit
Mar. 1, 2010	Direct Materials Inventory	9,000	
	Direct Materials Price Variance	150	
	Accounts Payable		9,150

After the March 1 posting for transaction is done, the Direct Materials Price Variance account shows a debit balance of Rs.50 (the Rs.100 credit on January 2 combined with the Rs.150 debit on March 1). A debit balance in a variance account is always unfavorable which shows that the total of actual costs is higher than the total of the planned standard costs. In other words, the company's profit will be Rs.50 less than expected unless you take some action to rectify the variance.

On June 1 your company receives 3,000 meters of cotton at an actual cost of Rs.2.92 per meter for a total of Rs.8,760 due in 30 days. The entry is:

Date	Account Name	Debit	Credit
June 1, 2010	Direct Materials Inventory	9,000	
	Direct Materials Price Variance		240
	Accounts Payable		8,760

Direct Materials Inventory is debited for the standard cost of Rs.9,000 (3,000 meters at Rs.3 per meter), Accounts Payable is credited for the actual amount owed, and the difference of Rs.240 is credited to Direct Materials Price Variance. A credit to the variance account indicates that the actual cost is less than the standard cost.

After this transaction is recorded, the Direct Materials Price Variance account shows an overall credit balance of Rs.190. A credit balance in a variance account is always favorable. In other words, your company's profit will be Rs.190 greater than planned due to the favorable cost of direct materials.

- **Direct Materials Usage Variance**

Under a standard costing system, production and stocks are reported at the standard cost—including the standard quantity of direct materials that should have been used to make the products. If the manufacturer

actually uses more direct materials than the standard quantity of materials for the products actually manufactured, the company will have an unfavorable direct materials usage variance. If the quantity of direct materials actually used is less than the standard quantity for the products produced, the company will have a favorable usage variance. The amount of a favorable and unfavorable variance is recorded in a general ledger account **Direct Materials Usage Variance**. (Alternative account titles include Direct Materials Quantity Variance or Direct Materials Efficiency Variance.) Let's understand this variance with the following information.

- **January 2010**

In order to calculate the direct materials usage or quantity variance, we start with the number of acceptable units of products that have been manufactured. At Cotton Works this is the number of pants physically produced. If Cotton Works produces 100 large pants and 60 small pants during January, the production and the finished goods inventory will begin with the cost of the direct materials that should have been used to make those pants. Any difference will be a variance.

NOTE: We are not determining the quantity of pants that Cotton Works should have made. Rather, we are determining whether the 100 large pants and 60 small pants that were actually manufactured were produced efficiently i.e. proper use of inventory and other resources. In the case of direct materials, we want to determine whether or not the company used the proper amount of cotton to make the 160 pants that were actually produced.

Standard costs are sometimes also termed as the "should be costs." Cotton Works *should be* using 278 meters of cotton to make 100 large pants and 60 small pants as shown in the following table.

	Large Pants	Small Pants	Total
Actual pants manufactured	100	60	
Standard meters of cotton per pants manufactured	2.0 mts.	1.3 mts.	
Total standard meters of cotton for the actual good pants manufactured—the number of meters of cotton that <i>should have been used</i> to make the good output	200	78 mts.	278 mts.

We determine the total standard cost of the cotton that should have been used to make the 160 pants by multiplying the standard quantity of cotton (278 meters) by the standard cost of a meter of cotton (Rs.3 per meter):

	Large Pants	Small Pants	Total
Total standard meters of cotton for the actual good (pants) manufactured	200 mts.	78 mts.	278 mts.
Standard cost per meter	Rs.3	Rs.3	Rs.3
Standard cost of cotton in the good output—the pants actually produced in January	Rs.600	Rs.234	Rs.834

An stock account is debited for Rs.834; this is the standard cost of the direct materials component in the pants manufactured in January 2010.

The **Direct Materials Inventory** account is reduced by the standard cost of the cotton actually removed from the direct materials inventory. Let's assume that the actual quantity of cotton removed from the direct materials inventory and used to make the pants in January was 290 meters. Because Direct

Materials Inventory reports the standard cost of the actual materials on hand, we reduce the account balance by Rs.870 (290 meters used Rs.3 standard cost per meter). After removing 290 meters of materials, the balance in the Direct Materials Inventory account is Rs.2,130 (710 meters x Rs.3 standard cost per meter).

The Direct Materials Usage Variance is: [the *standard* quantity of material that should have been used to make the good output **less** the *actual* quantity of material used] X the standard cost per meter.

In our example, Cotton Works should have used 278 meters of material to make 100 large pants and 60 small pants. Because the company actually used 290 meters of cotton, we say that Cotton Works did not operate efficiently—an extra 12 meters of cotton was used (278 vs. 290 = 12). When we multiply the 12 meters by the standard cost of Rs.3 per meter, the result is an unfavorable direct materials usage variance of Rs.36.

Let's put the above information into a format commonly used for computing variances:

- **Direct Materials Usage/Quantity/Efficiency Variance Analysis**

	1. Debit Inventory-FG for the standard meters of cotton that should have been used to make the good output x the standard cost per meter of cotton	2. Credit Direct Materials Inventory for the actual meters of cotton used x the standard cost per meter of cotton	3. Direct Material Usage Variance (Std Yd - Act Yd) x Std Cost	
	Std Yd x Std Cost	Act Yd x Std Cost	Difference	
	278 std yd x Rs.3	290 act yd x Rs.3	(12 yd) x Rs.3	
	Rs.834	Rs.870		
			Rs.36 Unfavorable	

The journal entry for the direct materials portion of the January production is:

Date	Account Name	Debit	Credit
Jan. 31, 2010	Inventory-FG	834	
	Direct Materials Usage Variance	36	
	Direct Materials Inventory		870

- **February 2010**

Let's assume that in February 2010 CottonWorks produces 200 large pants and 100 small pants and that 520 meters of cotton are actually used. From this information we can compute the following:

	Large Pants	Small Pants	Total
Actual pants manufactured	200	100	300
Standard meters of cotton per pants manufactured	2.0 mts.	1.3 mts.	
Total standard meters of cotton for the actual pants manufactured	400 mts.	130 mts.	530 mts.
Standard cost per meter	Rs.3	Rs.3	Rs.3
Standard cost of cotton in the good output	Rs.1,200	Rs.390	Rs.1,590

Let's put the above information into our format:

- **Direct Materials Usage (or Quantity) Variance Analysis**

	2. Credit Direct Materials Inventory for the actual meters of cotton used x the standard cost per meter of cotton	3. Direct Material Usage Variance (Std Yd - Act Yd) x Std Cost	1. Debit Inventory-FG for the standard meters of cotton that should have been used to make the good output x the standard cost per meter of cotton
	Act Yd x Std Cost	Difference	Std Yd x Std Cost
	520 act yd x Rs.3	10 yd x Rs.3	530 std yd x Rs.3
	Rs.1,560		Rs.1,590
		Rs.30 Favorable	

The journal entry for the direct materials portion of the February production is:

Date	Account Name	Debit	Credit
Feb. 28, 2010	Inventory-FG	1,590	
	Direct Materials Usage Variance		30
	Direct Materials Inventory		1,560

- **Direct Labor: Standard Cost, Rate Variance, Efficiency Variance**

“Direct labor” refers to the work done by those employees who actually make the product on the production line. (“Indirect labor” is work done by employees who work in the production area, but do not work on the production line. Examples include employees who set up or maintain the equipment.)

Unlike direct materials (which are obtained prior to being used) direct labor is obtained *and* used at the same time. This means that for any given good output, we can compute the direct labor rate variance, the direct labor efficiency variance, *and* the standard direct labor cost at the same time.

- **January 2010**

Let’s begin by determining the standard cost of direct labor for the good output produced in January 2010:

	Large Pants	Small Pants	Total
Actual pants manufactured	100	60	
Standard hours of direct labor per pants manufactured	0.3 hr.	0.2 hr.	
Total standard hours of direct labor for actual pants manufactured	30 hr.	12 hr.	42 hr.
Standard cost per direct labor hour incl. payroll taxes	Rs.10	Rs.10	Rs.10
Standard cost of direct labor in the good output	Rs.300	Rs.120	Rs.420

Assuming that the actual direct labor in January adds up to 50 hours and the actual hourly rate of pay (including payroll taxes) is Rs.9 per hour, our analysis will look like this:

- **Direct Labor Variance Analysis for January 2010:**

4. Credit Wages Payable for the actual direct labor cost.	5. Direct Labor Rate Variance Act Hr x (Std Rate - Act Rate)	2. Actual hours of direct labor used x the standard hourly pay rate	3. Direct Labor Efficiency Variance (Std Hr - Act Hr) x Std Cost	1. Debit Inventory-FG for the standard hours of direct labor that should have been used to make the good output x the standard hourly pay rate .
Act Hr x Act Rate	Difference	Act Hr x Std Rate	Difference	Std Hr x Std Rate
50 act hr x Rs.9	50 hr x Rs.1	50 act hr x Rs.10	(8 hr) x Rs.10	42 std hr x Rs.10
Rs.450		Rs.500		Rs.420
	Rs.50 Favorable		Rs.80 Unfavorable	

In January, the direct labor efficiency variance (#3 above) is unfavorable because the company actually used 50 hours of direct labor—this is 8 hours more than the standard quantity of 42 hours allowed for the good output. The additional 8 hours is multiplied by the standard rate of Rs.10 to give us an unfavorable direct labor efficiency variance of Rs.80. (The direct labor efficiency variance could be called the direct labor quantity variance or usage variance.)

Note that Cotton Works paid Rs.9 per hour for labor when the standard rate is Rs.10 per hour. This Re.1 difference—multiplied by the 50 actual hours—results in a Rs.50 favorable direct labor rate variance. (The direct labor rate variance could be called the direct labor *price* variance.)

The journal entry for the direct labor portion of the January production is:

Date	Account Name	Debit	Credit
Jan. 31, 2010	Inventory-FG	420	
	Direct Labor Efficiency Variance	80	
	Direct Labor Rate Variance		50
	Wages Payable		450

- **February 2010**

In February your company manufactures 200 large pants and 100 small pants. The standard cost of direct labor for the good output produced in February 2010 is computed here:

	Large Pants	Small Pants	Total
Actual pants manufactured	200	100	
Standard hours of direct labor per pants manufactured	0.3 hr.	0.2 hr.	
Total standard hours of direct labor for actual pants manufactured	60 hr.	20 hr.	80 hr.
Standard cost per direct labor hour incl. payroll taxes	Rs.10	Rs.10	Rs.10
Standard cost of direct labor in the good output	Rs.600	Rs.200	Rs.800

If we assume that the actual labor hours in February add up to 75 and the hourly rate of pay (including payroll taxes) is Rs.11 per hour, the total equals Rs.825. The analysis for February 2010 looks like this:

● **Direct Labor Variance Analysis for February 2010:**

4. Credit Wages Payable for the actual direct labor cost.	5. Direct Labor Rate Variance Act Hr x (Std Rate - Act Rate)	2. Actual hours of direct labor used x the standard hourly pay rate	3. Direct Labor Efficiency Variance (Std Hr - Act Hr) x Std Cost	1. Debit Inventory-FG for the standard hours of direct labor that should have been used to make the good output x the standard hourly pay rate.
Act Hr x Act Rate	Difference	Act Hr x Std Rate	Difference	Std Hr x Std Rate
75 act hr x Rs.11	75 hr x (Rs.1)	75 act hr x Rs.10	5 hr x Rs.10	80 std hr x Rs.10
Rs.825		Rs.750		Rs.800
	Rs.75 Unfavorable		Rs.50 Favorable	

Notice that for the good output in February, the total actual labor costs amounted to Rs.825 and the total standard cost of direct labor amounted to Rs.800. This unfavorable difference of Rs.25 agrees to the sum of the two labor variances:

Direct labor <i>efficiency</i> variance	Rs.50 Favorable
Direct labor <i>rate</i> variance	<u>Rs.75 Unfavorable</u>
Total Direct Labor Variance	Rs.25 Unfavorable

The journal entry for the direct labor portion of the February production is:

Date	Account Name	Debit	Credit
Feb. 28, 2010	Inventory-FG	800	
	Direct Labor Rate Variance	75	
	Direct Labor Efficiency Variance		50
	Wages Payable		825

Later in Part 5 we will discuss what to do with the balances in the direct labor variance accounts under the heading "What To Do With Variance Amounts".

● **Variable Mfg Overhead: Standard Cost, Spending Variance, Efficiency Variance**

"Manufacturing overhead costs" refer to any costs within a manufacturing facility other than direct material and direct labor. Manufacturing overhead includes such things as indirect labor, indirect materials (such as manufacturing supplies), utilities, quality control, material handling, and depreciation on the manufacturing equipment and facilities.

"Variable" manufacturing overhead costs will increase in total as output increases. An example is the cost of the electricity needed to operate the machines that cut and sew the cotton. Another example is the cost of the manufacturing supplies (such as needles and thread) that increase when production increases. In our example we assume that these variable manufacturing overhead costs fluctuate in response to the number of direct labor hours. Recall the original estimates made when CottonWorks was formed:

		Large Pants	Small Pants
Time required to cut and sew		0.3 hr. (18 min.)	0.2 hr. (12 min.)
Electricity and supplies used per hour of labor	Rs.2		

January 2010

Let's begin by determining the standard cost of variable manufacturing overhead for the good output that CottonWorks produces in January 2010:

	Large Pants	Small Pants	Total
Actual pants manufactured	100	60	
Standard hours of direct labor per pants manufactured	0.3 hr.	0.2 hr.	
Total standard hours of direct labor in the good pants manufactured	30 hr.	12 hr.	42 hr.
Standard cost of variable manufacturing overhead per direct labor hour	Rs.2	Rs.2	Rs.2
Standard cost of variable manufacturing overhead in the good output	Rs.60	Rs.24	Rs.84

Recall that there were 50 actual direct labor hours in January. Let's assume that the actual cost for the variable manufacturing overhead (electricity and manufacturing supplies) during January is Rs.90.

Our analysis will look like this:

- **Variable Manufacturing Overhead Analysis for January 2010:**

4. Actual variable manufacturing overhead used	5. Variable manufacturing overhead spending variance Act Hr x (Std Rate - Act Rate)	2. Actual hours of direct labor used x the standard variable manufacturing overhead rate	3. Variable manufacturing overhead efficiency variance (Std Hr - Act Hr) x Std Rate	1. Debit Inventory-FG for the standard hours of direct labor that should have been used in the good output x the standard variable manufacturing overhead rate
Act Hr x Act Rate	Difference	Act Hr x Std Rate	Difference	Std Hr x Std Rate
50 act hr x Rs.1.80*	50 act hr x Rs.0.20	50 act hr x Rs.2	(8 hr) x Rs.2	42 std hr x Rs.2
Rs.90		Rs.100		Rs.84
	Rs.10 Favorable		Rs.16 Unfavorable	

*Actual cost of Rs.90 divided by 50 actual hours.

Notice that for the good output produced in January, the actual cost of variable manufacturing overhead was Rs.90 and the total standard cost of variable manufacturing overhead cost allowed for the good output was Rs.84. This unfavorable difference of Rs.6 agrees to the sum of the two variances:

Variable manufacturing overhead efficiency variance	Rs.16 Unfavorable
Variable manufacturing overhead spending variance	Rs.10 Favorable
Total Variable Manufacturing Overhead	Rs. 6 Unfavorable

- **Variable Manufacturing Overhead Efficiency Variance**

As the above analysis shows, CottonWorks did not produce the good output efficiently-it used 50 actual direct labor hours instead of the 42 standard direct labor hours allowed.

The additional 8 hours no doubt caused the company to use additional electricity and supplies. Measured at the originally estimated rate of Rs.2 per direct labor hour, this amounts to Rs.16 (8 hours x Rs.2). This is referred to as an unfavorable variable manufacturing overhead efficiency variance.

- **Variable Manufacturing Overhead Spending Variance**

In the analysis above, item 2 shows that based on the 50 direct labor hours actually used, electricity and supplies could reasonably add up to Rs.100 instead of the standard of Rs.84. (If the good output took 8 actual direct labor hours more than the standard hours to cut and sew the cotton, the company will likely have additional electricity and supplies costs since it is operating the machines for an additional 8 hours.) We find, however, that the actual cost of the electricity and supplies is Rs.90, not Rs.100. This Rs.10 favorable variance indicates that the company did not spend the planned Rs.2 per direct labor hour. (Perhaps electricity rates were lower than the rates anticipated when the standard costs were established.)

Actual variable manufacturing overhead costs are debited to overhead cost accounts. The credits are made to accounts such as Accounts Payable. For example:

Date	Account Name	Debit	Credit
Jan. 31, 2010	Var. Mfg. O/H Incurred	90	
	Accounts Payable		90

Another entry records how these overheads are assigned to the product based on standard costs:

Date	Account Name	Debit	Credit
Jan. 31, 2010	Inventory-FG	84	
	Var. Mfg. O/H Applied		84

As our analysis notes above and these entries illustrate, CottonWorks has an actual variable manufacturing overhead of Rs.90, but only Rs.84 (the standard amount) was applied to the products. The Rs.6 difference is "explained" by the two variances:

Variable manufacturing overhead efficiency variance	Rs.16 Unfavorable
Variable manufacturing overhead spending variance	Rs.10 Favorable
Total Variable Manufacturing Overhead Rs.	6 Unfavorable

February 2010

Recall that in February 2010 the company produced 200 large pants and 100 small pants. We use that good output to compute the standard cost of variable manufacturing overhead for February 2010:

	Large Pants	Small Pants	Total
Actual pants manufactured	200	100	
Standard hours of direct labor per good pants manufactured	0.3 hr.	0.2 hr.	
Total standard hours of direct labor in the good pants manufactured	60 hr.	20 hr.	80 hr.
Standard cost of variable manufacturing overhead per direct labor hour	Rs.2	Rs.2	Rs.2
Standard cost of variable manufacturing overhead in the good output	Rs.120	Rs.40	Rs.160

Given that there were 75 actual direct labor hours in February and assuming that the actual cost for the variable manufacturing overhead in February was Rs.156, our analysis will look like this:

Variable Manufacturing Overhead Analysis for February 2010:

4. Actual variable manufacturing overhead used	5. Variable manufacturing overhead spending variance Act Hr x (Std Rate - Act Rate)	2. Actual hours of direct labor used x the standard variable manufacturing overhead rate	3. Variable manufacturing overhead efficiency variance (Std Hr - Act Hr) x Std Rate	1. Debit Inventory-FG for the standard hours of direct labor that should have been used in the good output x the standard variable manufacturing overhead rate
Act Hr Act Rate	Difference	Act Hr x Std Rate	Difference	Std Hr x Std Rate
75 act hr x Rs.2.08*	75 hr x (Rs.0.08)	75 act hr x Rs.2	5 hr x Rs.2	80 std hr x Rs.2
Rs.156		Rs.150		Rs.160
	Rs.6 Unfavorable		Rs.10 Favorable	

*Actual cost of Rs.156 divided by 75 actual hours.

The favorable difference between the actual cost of Rs.156 and the standard cost of Rs.160 agrees to the sum of the two variances:

Variable manufacturing overhead efficiency variance	Rs.10 Favorable
Variable manufacturing overhead spending variance	Rs. 6 Unfavorable
Total Variable Manufacturing Overhead	Rs. 4 Favorable

Actual variable manufacturing overhead costs are debited to overhead cost accounts. The credits are made to accounts such as Accounts Payable. For example:

Date	Account Name	Debit	Credit
Feb. 28, 2010	Var. Mfg. O/H Incurred	156	
	Accounts Payable		156

Another entry records how these overheads are assigned to the product:

Date	Account Name	Debit	Credit
Feb. 28, 2010	Inventory-FG	160	
	Var. Mfg. O/H Applied		160

As our analysis notes above and as these entries illustrate, even though CottonWorks had actual variable manufacturing overhead of Rs.156, the standard amount of Rs.160 was applied to the products. For the month of February 2010 the company applied more variable manufacturing overhead to its products than it actually incurred.

- **Fixed Manufacturing Overhead: Standard Cost, Budget Variance, Volume Variance**

"Fixed" manufacturing overhead costs remain the same in total even though the volume of production may increase by a modest amount. For example, the property tax on the manufacturing facility might be

Rs.50,000 per year and it arrives as one tax bill in December. The amount of the property tax bill was not dependent on the number of units produced or the number of machine hours that the plant operated. Other examples include the depreciation or rent on production facilities; salaries of production managers and supervisors; and professional memberships and training for personnel in the manufacturing area. Although the fixed manufacturing overhead costs present themselves as large monthly or annual expenses, they are, in reality, a small part of each product's cost.

CottonWorks has two fixed manufacturing overhead costs:

Rent for space per month including heat/air	Rs.600
Rent for equipment per month	<u>Rs.100</u>
Total Fixed Manufacturing Overhead per Month	Rs.700

A small amount of these fixed manufacturing costs must be allocated to each pants produced. This is known as absorption costing and it explains why some accountants say that each product must "absorb" a portion of the fixed manufacturing overhead costs.

A simple way to assign or allocate the fixed costs is to base it on things such as direct labor hours, machine hours, or pounds of direct material. (Accountants realize that this is simplistic; they know that overhead costs are a result of-or are driven by-many different factors.) Nonetheless, we will assign the fixed manufacturing overhead costs to the pants by using the same method we used for variable manufacturing overhead-by using direct labor hours.

- **Establishing a Predetermined Rate**

Companies typically establish a standard fixed manufacturing overhead rate prior to the start of the year and then use that rate for the full year. Let's assume it is December 2008 and CottonWorks is developing the standard fixed manufacturing overhead rate to use in 2010. (As mentioned above, we will assign the fixed manufacturing overhead on the basis of direct labor hours.)

Step 1. Project/estimate the fixed manufacturing overhead costs for the year 2010.

We indicated above that CottonWorks' only fixed manufacturing overhead costs are rents of Rs.700 per month (space and equipment) totaling to Rs.8,400 for the year 2010.

Step 2. Project/estimate the total number of standard direct labor hours that are needed to manufacture your products during 2010.

We can do that from the information given earlier (and repeated here):

	Large Pants	Small Pants	Total
Time required to cut and sew - the standard	0.3 hr. (18 min.)	0.2 hr. (12 min.)	
Planned production for the year 2010	5,000 pants	3,000 pants	
Total standard direct labor hours in the planned production for the year 2010	1,500	600	2,100

Step 3. Compute the standard fixed manufacturing overhead rate to be used in 2010.

$$\begin{aligned}
 &= \text{Expected fixed manufacturing overhead for 2010} \div \text{Expected total standard direct labors hours (DLH) for 2010} \\
 &= \text{Rs.8,400} \div \text{2,100 Standard DLH} \\
 &= \text{Rs.4 per Standard Direct Labor Hour}
 \end{aligned}$$

NOTE:

One of the reasons a company develops a predetermined annual rate is that the rate is uniform throughout the year, even though the number of units manufactured may fluctuate month by month.

For example, if the company used monthly rates, the rate would be high in the months when few units are manufactured (monthly fixed costs of Rs.700 ÷ 100 units produced = Rs.7 per unit) and low when many units are produced (monthly fixed costs of Rs.700 ÷ 350 units = Rs.2 per unit).

- **Fixed Manufacturing Overhead Budget Variance**

The difference between the actual amount of fixed manufacturing overhead and the estimated amount (the amount budgeted when setting the overhead rate prior to the start of the year) is known as the fixed manufacturing overhead budget variance. In our example, we budgeted the annual fixed manufacturing overhead at Rs.8,400 (monthly rents of Rs.700 x 12 months). If CottonWorks pays more than Rs.8,400 for the year, there is an unfavorable budget variance; if the company pays less than Rs.8,400 for the year, there is a favorable budget variance.

- **Fixed Manufacturing Overhead Volume Variance**

Recall that the fixed manufacturing overhead (such as the large amount of rent paid at the start of every month) must be assigned to each pants produced. In other words, each pants must absorb a small portion of the fixed manufacturing overhead. At CottonWorks, the fixed manufacturing overhead is assigned to the good output by multiplying the standard rate by the standard hours of direct labor in each pants. Hopefully, by the end of the year there are enough good pants produced to absorb all of the fixed manufacturing overhead.

The fixed manufacturing overhead volume variance compares the amount of fixed manufacturing overhead budgeted to the amount that was applied to (or absorbed by) the good output. If the amount applied is less than the amount budgeted, there is an unfavorable volume variance-there was not enough good output to absorb the budgeted amount of fixed manufacturing overhead. If the amount applied to the good output is greater than the budgeted amount of fixed manufacturing overhead, the fixed manufacturing overhead volume variance is favorable. In brief, if CottonWorks applies more than the amount budgeted, the volume variance is favorable; if it applies less than the amount budgeted, the volume variance is unfavorable.

- **Illustration of Fixed Manufacturing Overhead Variances for 2010**

Let's assume that in 2010 Cotton Works manufactures (has actual good output of) 5,300 large pants and 2,600 small pants. Let's also assume that the actual fixed manufacturing overhead costs for the year are Rs.8,700. As we calculated earlier, the standard fixed manufacturing overhead rate is Rs.4 per standard direct labor hour. We begin by determining the fixed manufacturing overhead applied to (or absorbed by) the good output produced in the year 2010:

	Large Pants	Small Pants	Total
Actual pants manufactured	5,300	2,600	
Standard hours of direct labor hours per pants manufactured	0.3 hr.	0.2 hr.	
Total standard hours of direct labor in the good pants manufactured	1,590 hr.	520 hr.	2,110 hr.
Standard cost per direct labor hour for fixed manufacturing overhead	Rs.4	Rs.4	Rs.4
Standard cost of fixed manufacturing overhead in (applied to) the good output	Rs.6,360	Rs.2,080	Rs.8,440

Our analysis looks like this:

- **Fixed Manufacturing Overhead Analysis for the Year 2010:**

4. Actual fixed manufacturing overhead	5. Fixed manufacturing overhead <i>budget</i> variance Budgeted Amount - Actual Amount	2. Fixed manufacturing overhead budget for the year 2010	3. Fixed manufacturing overhead <i>volume</i> variance (1 - 2)	1. Debit Inventory-FG for the standard hours of direct labor that should be in the good output x the standard fixed manufacturing overhead rate
Actual Amount	Difference	Annual Budget	Difference	Std Hr x Std Rate
				2,110 std hr x Rs.4
Rs.8,700		Rs.8,400		Rs.8,440
	Rs.300 Unfavorable		Rs.40 Favorable	

This analysis shows that the actual fixed manufacturing overhead costs are Rs.8,700 and the fixed manufacturing overhead costs applied to the good output are Rs.8,440. This unfavorable difference of Rs.260 agrees to the sum of the two variances:

Fixed manufacturing overhead <i>volume</i> variance	Rs. 40 Favorable
Fixed manufacturing overhead <i>budget</i> variance	<u>Rs.300 Unfavorable</u>
Total Fixed Manufacturing Overhead Variance	Rs.260 Unfavorable

Actual fixed manufacturing overhead costs are debited to overhead cost accounts. The credits are made to accounts such as Accounts Payable or Cash. For example:

Date	Account Name	Debit	Credit
During 2010	Fixed Mfg. O/H Incurred	8,700	
	Accounts Payable		8,700

Another entry records how these overheads are assigned to the product:

Date	Account Name	Debit	Credit
During 2010	Inventory-FG	8,440	
	Fixed Mfg. O/H Applied		8,440

12.6 Relationship Between Variances

If the direct labor is not efficient at producing the good output, there will be an unfavorable labor efficiency variance. That inefficiency will likely cause additional variable manufacturing overhead-resulting in an unfavorable variable manufacturing overhead efficiency variance. If these inefficiencies are significant, it is possible that the company may not be able to produce enough good output to absorb the planned fixed manufacturing overhead-resulting in an unfavorable fixed manufacturing overhead volume variance.

We will pursue the interdependence of variances in the following examples.

Example 1

Assume your company's standard cost for cotton is Rs.3 per meter, but you buy some cotton at a bargain price of Rs.2.50 per meter. For each meter of cotton purchased, Cotton Works reports a favorable direct materials price variance of Rs.0.50.

Let's also assume that the quality of the low-cost cotton ends up being slightly lower than the quality to which your company is accustomed. This lesser quality cotton causes the production to be a bit slower as workers spend additional time working around flaws in the material. In addition to this decline in productivity, you also find that some of the cotton is of such poor quality that it has to be discarded. Further, some of the finished pants don't pass the final inspection due to occasional defects not detected as the pants were made.

You get the picture. If the favorable Rs.0.50 per meter price variance correlates with lower quality, that cotton was no bargain. The Rs.0.50 per meter favorable variance may be more than offset by the following unfavorable quantity variances:

- direct material usage variance
- direct labor efficiency variance
- variable manufacturing overhead efficiency variance

Keep in mind that the standard cost is the cost allowed on the good output. Putting material, labor, and manufacturing overhead costs into products that will not end up as good output will likely result in unfavorable variances.

Example 2

Let's assume that you decide to hire an unskilled worker for Rs.9 per hour instead of a skilled worker for the standard cost of Rs.15 per hour. Although the unskilled worker will create a favorable direct labor rate variance of Rs.6 per hour, you may see significant unfavorable variances such as direct material usage variance, direct labor efficiency variance, variable manufacturing overhead efficiency variance, and possibly a fixed manufacturing volume variance.

These two examples highlight what experienced managers know—you need to look at more than price. A low cost for an inferior input is no bargain if it results in costly inefficiencies.

- **What To Do With Variance Amounts**

Throughout our explanation of standard costing we showed you how to calculate the variances. In the case of direct materials and direct labor, the variances were recorded in specific general ledger accounts. The manufacturing overhead variances were the differences between the accounts containing the actual costs and the accounts containing the applied costs. Now we'll discuss what we do with those variance amounts.

- **Direct Materials Price Variance**

Let's begin by assuming that the account Direct Materials Price Variance has a debit balance of Rs.3,500 at the end of the accounting year. You can see from the following journal entry (a hypothetical entry which assumes that all of the direct materials were purchased at one time) that a debit balance is an unfavorable variance:

Account Name	Debit	Credit
Direct Materials Inventory (standard cost)	10,000	
Direct Materials Price Variance	3,500	
Accounts Payable (actual cost)		13,500

Because of the cost principle, CottonWorks is obligated to report its transactions at their actual cost in the financial statements that are made available to the public. If none of the direct materials purchased in this journal entry was used in production (all of the direct materials remain in the direct materials inventory), the company's balance sheet needs to report the direct materials inventory at Rs.13,500-the actual cost. In other words, the balance sheet will report the direct materials inventory as the standard cost of Rs.10,000 plus the price variance of Rs.3,500. If all of the materials were used in making products, and all of the products have been sold, the Rs.3,500 price variance is added to the company's standard cost of goods sold. If 20% of the materials remain in the direct materials inventory and 80% of the materials are in the finished goods that have been sold, then Rs.700 of the price variance (20% of Rs.3,500) is added to the standard cost of the direct materials inventory, Rs.2,800 (80% of Rs.3,500) is added to the standard cost of goods sold.

Let's say the direct materials are in various stages of use: 20% have not been used yet; 5% are in work-in-process; 15% are in finished goods on hand; and 60% are in finished goods that have been sold. We need to apportion the Rs.3,500 direct materials price variance to each of these stages. Since the Rs.3,500 is an unfavorable amount, the following amounts are added to the standard costs:

Direct materials inventory	Rs. 700	(20% of Rs.3,500)
Work-in-process inventory	175	(5% of Rs.3,500)
Finished goods inventory	525	(15% of Rs.3,500)
Cost of goods sold	<u>2,100</u>	(60% of Rs.3,500)
Total	Rs.3,500	

The accounting professional follows a materiality guideline which says that a company may make exceptions to other accounting principles if the amount in question is insignificant. (For example, a large company may report amounts to the nearest Rs.1,000 on its financial statements, or an inexpensive item like a wastebasket can be expensed immediately instead of being depreciated over its useful life.) This means that if the total variance of Rs.3,500 shown above is a very, very small amount relative to the company's net income, the company can charge the entire Rs.3,500 to cost of goods sold instead of allocating some of the amount to the inventories.

If the balance in the Direct Materials Price Variance account is a credit balance of Rs.3,500 (instead of a debit balance) the method and discussion would be the same, except that the standard costs would be reduced instead of increased.

- **Direct Materials Usage Variance**

Let's assume that the Direct Materials Usage Variance account has a debit balance of Rs.2,000 at the end of the accounting year. A debit balance is an unfavorable balance resulting from more direct materials being used than the standard amount allowed for the good output.

The first question to ask is "From where did this unfavorable variance of Rs.2,000 arise?" If it was caused by mistakes and/or inefficiencies, it cannot be included as part of the cost of the inventory. Errors and inefficiencies are never considered to be assets; therefore, the entire amount must be expensed.

If the unfavorable Rs.2,000 variance is the result of an unrealistic standard for the quantity of direct materials needed, then we should allocate the Rs.2,000 variance to wherever the standard costs of direct materials are physically located. If 90% of the related direct materials have been sold and 10% are in the finished goods inventory, then the Rs.2,000 should be allocated and added to the standard direct material costs as follows:

Direct materials inventory	Rs.	0	
Work-in-process inventory		0	
Finished goods inventory		200	(10% of Rs.2,000)
Cost of goods sold		<u>1,800</u>	(90% of Rs.2,000)
Total		Rs.2,000	

If Rs.2,000 is an insignificant amount relative to a company's net income, the entire Rs.2,000 unfavorable variance can be added to the cost of goods sold. This is permissible because of the materiality guideline.

If the Rs.2,000 balance is a credit balance, the variance is favorable. This means that the actual direct materials used were less than the standard quantity of materials called for by the good output. We should allocate this Rs.2,000 to wherever those direct materials are physically located. However, if Rs.2,000 is an insignificant amount, the materiality guideline allows for the entire Rs.2,000 to be deducted from the cost of goods sold on the income statement.

12.7 Summary

Standard cost is a predetermined cost, which is computed, in advance of production on the basis of specification of all the factors affecting cost. A standard figure is one which may be used as a yard stick for measuring the efficiency or inefficiency of the actual performance. Standards are set for each element of cost viz. direct material, direct labour and overheads for each cost centre. The standards are determined and set and are shown in standard cost statement. Actual result of performance are compared with the standards by preparing a comparing statement of cost. The variations between actual and standards are ascertained. When standard cost is compared with the actual cost a difference is found between them. This difference is known as variance. Variance analysis is the process of analysing variances by subdividing the total variance. When the actual cost is less than standard cost the difference is termed as favourable (f) variance. On the contrary, if actual cost is more than standard cost, the difference is called as adverse variance. The difference between standard cost and the actual cost may be segregated element wise-direct material cost, direct labour cost and overhead cost variances. Different variances are used in different industries.

Following formulas are used for calculation of variances.

(A) Direct Material Cost Variance

$$MCV = (SQ \times SP) - (AQ \times AP)$$

$$MPV = (SP - AP) \times AQ$$

$$MUV = (SQ - AQ) \times SP$$

$$\text{Verification} - MCV = MPV + MUV$$

When two or more than two materials are used:

$$MMV = (RSQ - AQ) \times SP$$

$$MSUV = (SQ - RSQ) \times SP$$

$$\text{Verification} - MUV = MMV + MSUV$$

(B) Labour Variances

$$LCV = (SH \times SR) - (AH \times AR)$$

$$LRV = (SR - AR) \times AH$$

$$LEV = (SH - AH) \times SR$$

$$\text{LITV} = (\text{O} - \text{IH}) \times \text{SR}$$

$$\text{LMV} = (\text{RSH} - \text{AH}) \text{SR}$$

$$\text{LSEV} = (\text{SH} - \text{RSH}) \text{SR}$$

$$\text{Verification - LCV} = \text{LRV} + \text{LEV}$$

$$\text{LEV} = \text{LMV} + \text{LSEV}$$

(C) Variable Overhead Variances

(i) on the basis of unit of output

$$\text{VOCV} = (\text{SR} - \text{AR}) \times \text{AO}$$

$$\text{VO Exp. V} = (\text{SO} \times \text{SR}) - (\text{AO} \times \text{AR})$$

$$\text{VO Eff. V} = (\text{AO} - \text{SO}) \times \text{SR}$$

(ii) on the basis of standard hours

$$\text{VOCV} = (\text{SH} \times \text{SR}) - (\text{AH} \times \text{AR})$$

$$\text{VO Exp. V} = (\text{SR} - \text{AR}) \times \text{AH}$$

$$\text{VO Eff. V} = (\text{SH} - \text{AH}) \times \text{SR}$$

$$\text{Verification - VOCV} = \text{VO Exp. V} + \text{VO Eff. V}$$

(D) Fixed Overhead Variances

(i) on the basis of units of output

$$\text{FOCV} = (\text{SR} - \text{AR})$$

$$\text{FO Exp. V} = (\text{BO} - \text{AO}) \times \text{SR}$$

$$\text{FOVV} = (\text{AO} - \text{BO}) \times \text{SR}$$

$$\text{FO Eff. V} = (\text{AO} - \text{SO}) \times \text{SR}$$

$$\text{FOCV} = (\text{SO} - \text{BO}) \times \text{SR}$$

(ii) on the basis of standard hours

$$\text{FOCV} = (\text{SH} \times \text{SR}) - (\text{AH} \times \text{AR})$$

$$\text{FO Exp. V} = (\text{BH} \times \text{SR}) - (\text{AH} \times \text{AR})$$

$$\text{FOVV} = (\text{SH} - \text{BH}) \times \text{SR}$$

$$\text{FO Eff. V} = (\text{SH} - \text{AH}) \times \text{SR}$$

$$\text{FOCV} = (\text{AH} - \text{BH}) \times \text{SR}$$

$$\text{Verification - FOCV} = \text{FO Exp. V} + \text{FOVV}$$

$$\text{FOVV} = \text{FO Eff. V} + \text{FOCV}$$

(E) Sales Variances

(a) Sales turnover method.

$$(i) \text{ Sales Value Variance} = (\text{AP} \times \text{AQ} - \text{SP} \times \text{SQ})$$

$$(ii) \text{ Sales Price Variance} = \text{AQ} (\text{AP} - \text{SP})$$

$$\text{Verification} = \text{SVV} = \text{SPV} + \text{S vol. V}$$

(b) Sales margin method

(i)	Total sales margin variance	=	Actual margin - Budgeted margin
(ii)	Sales margin price variance	=	AQ(Actual margin-Budgeted margin)
(iii)	Sales margin volume variance	=	Budgeted margin (AQ - BQ)

12.8 Key Words

- **Direct labour efficiency variance** A standard costing variance showing the difference between the actual hours worked and the hours that should have been worked for the actual production valued at the standard hourly rate.
- **Direct labour rate variance** A standard costing variance showing the difference between the actual rate and the standard rate for the actual number of hours worked.
- **Direct labour total variance** A standard costing variance showing the difference between actual direct labour cost and the direct labour hours that should have been worked for the actual number of units produced valued at the standard hourly rate.
- **Direct materials price variance** A standard costing variance showing the difference between the actual cost and the standard cost of the actual materials used in production.
- **Direct materials total variance** A standard costing variance showing the difference between the actual cost of materials used in production and the standard quantity of the actual production valued at the standard cost.
- **Direct materials usage variance** A standard costing variance showing the difference between the actual quantity of materials used in production and the standard quantity valued at the standard cost.
- **Fixed production capacity variance** A standard costing variance showing the difference between the budgeted fixed production overhead expenditure and the actual hours worked valued at the fixed production overhead absorption rate.
- **Fixed production overhead efficiency variance** A standard costing variance showing the difference between the actual hours worked and the standard hours for the actual production valued at the fixed production overhead absorption rate.
- **Fixed production overhead expenditure variance** A standard costing variance showing the difference between the actual fixed production overhead and the budgeted fixed production overhead.
- **Fixed production overhead total variance** A standard costing variance showing the difference between the actual fixed production overhead incurred and the standard hours of the actual production valued at the fixed production overhead absorption rate.
- **Fixed production overhead volume variance** A standard costing variance showing the difference between the budgeted fixed production overhead expenditure and the standard hours worked for the actual production valued at the fixed production overhead absorption rate.
- **Sales total variance** The difference between actual profit based on the standard cost of the actual quantity sold and the standard profit for the budgeted quantity.
- **Sales variances** Variances showing the difference between the actual sales revenue and the standard or budgeted sales revenue analysed into price and volume variances. A volume variance is sometimes also analysed into mix and quantity variances.

- **Sales volume profit variance** The difference between the actual quantity of units sold and the budgeted quantity valued at the standard profit per unit.
- **Standard** The amount or level set for the performance of a particular activity.
- **Standard cost** The budgeted or planned cost of material, labour, or overheads expected to be paid during a given accounting period.
- **Standard costing** A control method involving the preparation of detailed cost and sales budgets. Such budgets are then compared with the actual results for a specific account period and any significant variances between the actual and the budgeted results are investigated. Unexpected trends are corrected if they are not acceptable or they cannot be accommodated.
- **Variable production overhead efficiency variance** The difference between the actual hours worked and the hours that should have been worked for the actual production valued at the variable production overhead absorption rate.
- **Variable production overhead expenditure variance** The difference between the actual variable production overhead incurred and the actual hours worked valued at the variable production overhead absorption rate.
- **Variable production overhead total variance** The difference between the actual variable overhead incurred and the standard hours that ought to have been worked for the actual output valued at the variable production overhead absorption rate.
- **Variance** The difference between the actual cost and the budgeted or standard cost of a particular activity, or the actual sales revenue and the budgeted or standard sales revenue.
- **Variance analysis** An investigation into the causes of variances.

12.9 Self Assessment Test

1. The following data are related to production of 'x' Calculate material variances:

Material	Standard	Actual
X	400 Kgs. @ Rs. 10	550 Kgs. @ Rs. 9
Y	500 Kgs. @ Rs. 5	350 Kgs. @ Rs. 7

(Ans. MCV = 900(A), MPV = 150(A), MUV = 750 (A).)

2. From the following informations calculate Labour Variances:

Standard				Actual		
Workmen	Hours	Rate (Rs.)	Total (Rs.)	Hours	Rate (Rs.)	Total (Rs.)
A	20	40	800	30	30	900
B	60	30	1800	46	40	1840

Ans. : LCV=270(A), LRV = 160 (A), LEV = 110(A), LMV = 110(A) LSEV = 0

3. From the following data, calculate variable and fixed overhead variance:

Budgeted output	50 lot
Actual output	60 lot
Fixed overhead absorption rate per hour	Rs. 3
Variable overheads (actual as well as budgeted)	Rs. 7500
Standard hours per lot	100 hours
Actual fixed overheads	Rs. 14500
Actual hours worked	5600 hours

Ans. : VOCV = 1500(f), VOEV = 600 f, VO Exp. V = 900(f) FOCV = 3500(f), FO Exp. V = 500(f), FOVV = 3000(f), FO Eff. V = 1200(f), FO cap. V = 1800 f.

4. Compute sales variances from the following data:

	Product R	Product S
Sales Quantity (Units)		
Standard	400 Units	400 Units
Actual	500 Units	900 Units
Selling price per units (Rs.)		
Standard	Rs. 12	Rs. 15
Actual	Rs. 15	Rs. 20

(Ans.: SVV = 12700(f), SPV = 5500(f), SVV = 7200(f), SMV = 450 (f) SSVV6750 (f).

12.10 Reference Books

1. Tulsian P.C., *Cost Accounting*.
2. Robert Nelson G.H., *Standard costing in theory and practice*.
3. Kishore M. Ravi, *Cost Accounting*.

Unit- 13 Budgetary Control

Unit Structure

- 13.0. Objectives
- 13.1 Introduction
- 13.2 Meaning of Budget and Budgeting
- 13.3 Definitions
- 13.4 Essentials of Effective Budgeting
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13.0 Objectives

The study of this unit will enable you to understand:-

- The concept meaning and definition of budget and budgetary control.
- Objectives, Characteristics, Advantages and Disadvantages of Budgetary Control.
- Budgetary Control Process
- Types of Budgets.

13.1 Introduction

The efficiency of management depends upon the accomplishment of the goals of an organization. It is effective when it attains the objective with least cost and effort. A systematic approach for attaining effective management performance is budgeting, which is an integral part of management. This is the process of pre- estimation of cost, revenue, profit and other figures for the next year or period and on the basis, actual expenses incurred revenue generated/earned. Afterwards budget is used as a standard for measuring actual performance. The deviations are found out and responsibility is fixed for deviations. Various budgets are prepared for different purposes.

13.2 Meaning of Budget and Budgeting

In our routine life we prepare budgets for matching the expenses with income and available funds can be invested in business. Likewise, in business, budgets are prepared on the basis of future estimated cost, revenue, profit etc. Budget is a financial or quantitative statement prepared prior to a defined period of time for the purpose of execution of management, policies for accomplishing the given goal. It is a tool of

plan as the making of budget is nothing else but an advance planning. It provide standards by which actual operations can be evaluated to know variations from planned expenditure, profits.

Budgeting is the formulation of plans for the future activities of a business after careful consideration of goals. It provides yardsticks by which deviations from achievements can be measured. It helps in remaining unproductive activities and intimation of waste because preparation of budgets involves careful analysis of different phases of business, it is a tool of control as it fixes the individual responsibilities for fulfilling the plan.

Budgetary Control is a technique which uses budgets as a means of controlling all business aspects and is designed to assist management. In allocation of responsibility and authority, measurement of actual performance, analysis of variance between actual and budgeted.

Budgeting process includes - Budget and Budgetary control. Budget is means and budgetary control is the end result.

13.3 Definitions

The major definitions of budget are as follows-

1. **C.I.M.A. (England)** "Budget is financial and/or quantitative statement prepared prior to a defined period of time of the policy to be pursued during that period for the purpose of attaining a given object"
2. **Heman. C. Heises** "Budget is overall blueprint of comprehensive plan of operations and actions expressed in financial terms."
3. **Bartzal** "A budget is forecast in detail, of the results of an officially reorganized programmed of operations based on the highest reasonable expectation of operating efficiency"

The prominent definition of budgetary control is as under-

1. **C.I.M.A., England** "Budgetary control is the establishment of budgets relating to the responsibilities of executives to the requirement of a policy and the continuous comparison of actual with budgeted results either to secure by individual action the objectives of that policy or to provide a basis for its revision.
2. **J. Batty** "Budgetary control is a system which uses budgets as a means of planning and controlling all aspects of producing and selling commodities or service.
3. **Welsch** "Budgetary control is the use of budgets and budgetary reports throughout the period to co-ordinate, evaluate and control day to day operations in accordance with the goals specified by the budget."

13.4 Essentials of Effective Budgeting

The essential components of successful budgeting system are as under:-

- (a) There must be full support by every member of top management without which no system can be effective.
- (b) There should be a well defined responsibility center within the organization with clearly shown controllable cost for each such center.
- (c) The business policies of organization must be clearly defined as budget are based on such policies.
- (d) The accounting system must be complete in all regards from which reliable historical data is taken which form basis for preparing budgets.

- (e) The budgets must be reasonable so that responsible executives may agree. For this formation of budgets should be handed over to those executives by whom such budgets are to be used.
- (f) The ultimate goal is maximizing profit through budget system so it should not cost more than its worth.

13.5 Characteristics of Budgetary Control

The major characteristics of budgetary control are as under:-

- (1) Budgetary control implies the planning of activities as a plan cover all phases of operation for definite period.
- (2) Budgetary control assists the management in co-coordinating their efforts in attaining the objectives of the organization.
- (3) Budgetary control is a control tool aimed at keeping management, informed that whether predetermined plans are achieved or not.
- (4) Budgetary control makes appraisal to find out variances by comparing actual with budgeted ones and fixing responsibilities.
- (5) Budgetary control follow-up to make corrective measure and modify targets.

13.6 Objectives of Budgetary Control

The following are objectives of budgetary control.

- (a) To run production activities in efficient manner by leaving behind the chances of interruption in production due to lack of any article.
- (b) To control the cost and increase revenue, so as to know project at different stages of production.
- (c) To bring economy by comparing actual data with budgeted data so that timely corrective actions can be taken.
- (d) To predict short-term and long term financial positions for better financial position and management of working capital in a better manner.

13.7 Advantages of Budgetary Control

It is well known fact that a planned activity has better chances of success than unplanned one. The budgeting is forward planning and effective control following are advantage of budgetary control.

- (a) Budget preparation involves participation of management at all levels of organization which brings co-operation and team spirit.
- (b) It acts as tool for periodical evaluation of managerial policies and appraisal of performance of individual and department. So that corrective action can be taken in time to improve efficiency.
- (c) Budgetary Control inspires management to develop a sense of care and caution before making decisions.
- (d) Budgetary Control contributes to national economy by providing stability of employment, economic use of resources & effective prevention of waste.
- (e) Budgetary control provide for self - examination and self- criticism which is indispensable for the success of organization.

13.8 Limitations of Budgetary Control

Although Budgetary Control is desirable to an organization but it has certain limitations which are as under:-

- (a) Budgetary control faces objections by employees as the performance of employees is judged continuously.
- (b) It requires the experienced and technical man-power, which is costly affair.
- (c) Budgeting is an elaborate process which is time consuming affair.
- (d) Budgetary control loses its usefulness due to rigidity, if budgets are not revised regularly with changing business environment.
- (e) Forecasting, planning or budgeting is estimation not exact science and certain amount of judgment is present in budgeting.

13.9 Budget Control Process

For preparing an efficient budget, there is an urgent need of well-versed system for preparing the budget. This process is required an efficient system of implementation within the organization. The main essentials of establishment of system of budgeting are:

1. **Budget Centres** Budget centre are defined as various sections of an organization, where budgetary control measures are to be applied and for the purpose, separate budgets are to be prepared with the help of the head of these centers so that these may be executed more efficiently.
2. **Budget Committee** The budget committee is a group of representatives of various interrelated function in an organization, e.g. Sales manager, Production Manager, R&D Manager, Materials Manager, etc. It is necessary to discuss the targets so that a mutually agreed programmed can be determined. This is really the co-ordination in budget making. It is a powerful force in knitting together the various activities of the business and enforcing real control over operations.
3. **Budget Officer** To link up the various functions, to bring them together and to co- ordinate their efforts in the matter of preparation to target figures, there should be a person called budget Officer or Budget controller. He is enabling to provide ready data relating to all the functions. He helps in preparation of the various budgets and their co-ordinations and compilation into the master budget, bringing to the notice of the management the need for revision of budgets and assisting them in the task.
4. **Budget Manual** Budget manual is defined as a document which sets outstanding instructions, the responsibility of the persons engaged in, and the procedures, forms and records relating to the preparation and use of budgets. It is a booklet of budget policies which lays down the details of the organizational set up with duties and responsibilities of executives including the budget committee and budget officer and procedures to be followed for developing budget in respect of various activities.
5. **Budget period** This is the period for which forecasts can reasonably be made and budgets can be formulated. Budget periods vary between short-term and long -term and no specific period can be laid down for all budgets. The length of the budget period depends on the type of the business, the length of the manufacturing cycle from raw material to finished products, the ease or difficulty of forecasting future market conditions and other factors.
6. **Budget Key Factor or Determining Principal Budget Factor** The key factor is also known as

limiting factor, governing factor, etc. and may be defined as the factor which at particular time or over a period will limit the activities of and undertaking. The limiting factor is, usually, the level of demand for the products or services of the undertaking, but it could be a shortage of one of the productive resources, e.g. skilled labor, raw material, or machine capacity etc. The key factor is normally temporary in nature. In the long run, they can be overcome by proper planning and management action.

7. **Forecasting** Forecasting is the statement of events likely to occur. It is usually the practice to judge the accuracy of forecasts on the basis of actual performance, taking the latter to be correct. A forecast forms the basis for the budget. A budget indicates a target and it is a statement of planned events, evolved from forecast.
8. **Determining Level of Activity** The level of activities are determined on the basis of information and estimates provided regarding future conditions and activities of market and position of product in the market by departmental heads or concerned managers, for this purpose, detailed discussions, analysis, preparation of reports are to be done and then written report to be formed and submitted to budget committee for their decision making.
9. **Preparation of Budget** The budget should be prepared by the manager who is responsible for meeting the budgeted performance after discussing all the factors which may affect the process of budgeting. The budget should originate at the lowest levels of management and be refined and co-ordinated at higher levels. This will enable managers to participate in the preparation of their budgets and increase the probability that they will accept the budget and strive to achieve the budgeted targets.

13.10 Types of Budgets

Budgets can be classified into different categories on the basis of time, functions or flexibility. The different budgets covered under each category are shown in the following chart:

13.10.1 Classification of Budgets

Time	Function	Flexibility
<ul style="list-style-type: none"> • Long-term • Short-term • Current 	<ul style="list-style-type: none"> • Sales • Production • Cost of Production • Purchase • Personnel • Research • Capital Expenditure • Cash • Master 	<ul style="list-style-type: none"> • Fixed • Flexible

13.10.2 Classification According to Time

The Budget, on the basis of time, may be classified as:

1. **Current Budget** The budget prepared for a period of a week, a month, or a quarter is termed as a current budget. They are essentially short-term budgets adjusted to current conditions or prevailing circumstances.
2. **Short Term Budget** The budget prepared for a period of less than 5 year is short term budget.

Generally short term budgets are prepared for a period of one to two years. They are generally prepared in terms of physical as well as in monetary units.

- 3. Long - Term Budget** A budget designed for a long period is termed as long term budget. The period generally is of 5 to 10 years. These budgets are concerned with planning of the operations of a firm over a considerably long period of time. They are generally prepared in terms of physical quantities.

13.10.3 Classification According to Function

Budgets can be classified on the basis of functions, they are meant to perform. Different types of budgets under this head are as follows:

- 1. Sales Budget:** - This is the most important budget on which all other budgets are based. The sales manager is responsible for preparation and execution of the budget. The budget forecasts total sales in terms of quantity, value, items, periods, areas etc. Normally it is called as Key Folder Budget utmost cases sales is a governing factor for a manufacturing concern.

Activity
Normally which budget is treated as key factor budget?

Illustration :1

Shri Ram and Delhi Manufacturers make two types of toys, Bunty and Babli and sell them in Jaipur and Delhi markets. The followings information is made available for the current year 2009-2010:

Places/Markets	Type of Toys	Budgeted Sales 2008-2009	Actual Sales 2008-2009
Jaipur	Bunty	400 at Rs. 9 each	500 at Rs. 9 each
	Babli	300 at Rs. 21 each	200 at Rs. 21 each
	Bunty	600 at Rs. 9 each	700 at Rs. 9 each
Delhi	Bubli	500 at Rs. 21 each	400 at Rs. 21 each

Market studies reveal that toy Bunty is popular as it is under priced. It is observed that if its price is increased by Rs. 1 it will find a ready market. On the other hand, Babli over-priced and the market could absorb more sales if its selling price is reduced to Rs. 20. The management has agreed to give effect to the above price changes.

On the above basis, the following estimates have been prepared by the sales manager:

Product	% increase in Sales	Over Current Budget
	Jaipur	Delhi
Bunty	+10%	+5%
Babli	+20%	+10%

With the help of an intensive advertisement campaign, the following additional sales above the estimated sales are possible:

Product	Jaipur	Delhi
Bunty	60 Units	60 Units
Babli	40 Units	50 Units

You are required to prepare a budget for sales incorporating the above estimates.

Solution

Budgetd for the year		2008-2009			Actual Sales 2008-2009			Budget for the future		
Place	Product	Units	Price Rs.	Value Rs.	Units	Price Rs.	Value Rs.	Units	Price Rs.	Value Rs.
Jaipur	Bunty	400	9	3600	500	9	4500	500	10	5000
	Babli	300	21	6300	200	21	4200	400	20	8000
	Total	700	-	9900	700	-	8700	900	-	13000
Delhi	Bunty	600	9	5400	700	9	6300	700	10	7000
	Babli	500	21	10500	400	21	8400	600	20	12000
	Total	1100	-	15900	1100	-	14700	1300	-	19000
Total	Bunty	1000	9	9000	1200	9	10800	1200	10	12000
	Babli	800	21	16800	600	21	12600	1000	20	20000
	Total	1800	-	25800	1800	-	23400	2200	-	32000

Working Note:-

(i) Calculation of Budget Estimates

	Jaipur	Delhi
Bunty Budgeted	400	600
Increase	40(+10%)	30(+5%)
	440	630
Advertisement effect	60	70
	500	700
Babli Budgeted	300	500
Increase	60(+20%)	50(+10%)
	360	550
Advertisement effect	40	50
	400	600

2. Production Budget The budget is basically based on sales budget. It forecasts quantity of production in terms of items, periods, areas, etc. The works manager is responsible for the preparation of overall production budget and departmental works manager is responsible for departmental production budgets.

Illustration :2

Suraj Manufacturing Company wishes to prepare a production budget in respect of three products A,B, and C, the sales farecast for which is 80,000 units, 72,000 units and 85,000 units respectively. The estimated requirement of inventory both at the beginning and at the end of the budget period are shown in the following Schedule:

Inventory Schedule

	A	B	C
Ist January (Units)	16,000	12,000	20,000
3Ist December (Units)	20,000	11,000	27,000

You are required to prepare the Production Budget:

Solution:

Suraj Manufacturing Company
Production Budget
for the year ending 31st December

Particular	Products		
	A (Units)	B (Units)	C (Units)
Sales Budget	80,000	72,000	85,000
Add: Closing Inventory	20,000	11,000	27,000
Total Units required	1,00,000	83,000	1,12,000
Less: Opening Inventory	16,000	12,000	20,000
Planned Production	84,000	71,000	92,000

- 3. Purchase Budget:** The budget forecasts the quantity and value of purchases required for production. It gives quantity-wise and period-wise information about the materials to be purchased. It correlates with sales forecast and production planning.

$$\text{Budgeted purchase Quantity} = \text{Budgeted consumption Quantity} + \text{Required closing Stock} - \text{Opening Stock}$$

Illustration:3

The following information relates to a manufacturing company:

Targeted sales of product P 2,00,000 units. Each unit of product P requires 3 units of material X and 4 units of material Y.

Estimated opening balance at the commencement of the next year.

Finished Product	:	40,000 units
Material X	:	48,000 units
Material Y	:	60,000 units

The desirable closing balances at the end of the next year are:

Finished Product	:	56,000 units
Material X	:	52,000 units
Material Y	:	64,000 units

From the above information prepare a Material Budget.

Solution:

The number of units to be produced.

$$\begin{aligned} \text{Opening Stock} + \text{Production} &= \text{Sales} + \text{Closing Stock} \\ \text{Units to be produced} &= \text{Sales} + \text{Closing Stock} - \text{Opening Stock} \\ &= 2,00,000 + 56,000 - 40,000 \\ &= 2,16,000 \text{ units} \end{aligned}$$

Material required:

$$\begin{aligned} \text{Material A} &= 2,16,000 \times 3 = 6,48,000 \text{ units} \\ \text{Material B} &= 2,16,000 \times 4 = 8,64,000 \text{ units} \end{aligned}$$

Material Purchase Budget (Units)

Particular	Finished Product	Material required	
		X	Y
Budget Production	216000	648000	864000
Add: Opening Stock	+ 40000	(-) 48000	(-) 60000
Less: Closing Stock	256000	600000	804000
Estimated product for Sales	(-) 56000	(+) 52000	(+) 64000
Estimated Material required:	200000	652000	868000

- Personnel budget:** The budget anticipates the quantity of personnel required during a period for production activity. This may be further split up between direct and indirect personnel budgets.
- Cost of Production Budget:** It forecasts the cost of production. Separate budgets are prepared for different elements of costs such as direct materials budgets, direct labour budget, factory overheads budget, office overheads budget, selling and distribution overhead budget, etc.

Illustration: 4

The following information is abstracted from the books of Mahalaxmi Co. Ltd., for the six months of 2010 in respect of products XX.

The following units are to be sold in different months of the year 2010.

January	2200
February	2200
March	3400
April	3800
May	5000
June	4600
July	4000

There will be work in progress at the end of the month. Finished units are equal to half the sales of the next month's stock at the end of every month (including December, 2009). Budgeted production and production cost for the half-year ending 30th June, 2010 are as follows:

Production (Units)	40000
Direct material per unit	Rs. 5
Direct Wages per unit	Rs. 2

Factory Overheads apportioned to production Rs. 160000

You are required to prepare product Budget and production Cost Budget for the six months of the year 2010.

Solution:

Production Budget (in Units)							
	January	February	March	April	May	June	Total
Estimated Sales	2200	2200	3400	3800	5000	4600	
Add: Closing Stock	1100	1700	1900	2500	2300	2000	
	3300	3900	5300	6300	7300	6600	
Less: Opening stock	1100	1100	1700	1900	2500	2300	
Production	2200	2800	3600	4400	4800	4300	22100

Production Cost Budget

	(Production : 22,100 units) Rs.
Direct Material @ Rs. 5 for 22,100 units	1,10,500
Direct Wages @ Rs. 2 for 22,100 units	44,200
Factory Overheads @ Rs. 4 for 22,100 units (Rs. 1,60,000/40,000 units)	88,400
Total Production Cost	2,43,100

6. **Cash Budget:-** The budget is a forecast of the cash position, for a specific duration of time of different time periods. It states the estimated amount of cash receipts and cash payments and the likely balance of cash in hand at the end of different periods,

Method of preparing cash Budgets

There are basically three methods for preparing cash budgets.

1. Receipts And Payments Method
2. Adjusted Profit And Loss Account Method
3. Balance Sheet Method

Activity

A company wants to know future liquidity position, so that liquidity can be arranged.
Which budget should be prepared by the company?

Illustration: 5

A company newly starting manufacturing operations on 1st January 2010 has made adequate arrangement for funds required for fixed assets. It wants you to prepare an estimate of funds required as working capital. It is to be remembered that:

- (a) In the first month there will be no sale, in the subsequent month sale will be 25% cash and 75% credit. Customer will be allowed one month credit.
- (b) Payments for purchase of raw materials will be made on one month credit basic.
- (c) Wages will be paid fortnightly on the 22nd and 7th of each month.
- (d) Other expenses will be paid one month in arrear except that 5% of selling expenses are to be paid immediately on sale being affected.

The estimated sales and expenses for the first six months, spread evenly over the period subject to (a) above are as under:

	Rs.		Rs.
Sales	360000	Administrative Expenses	54000
Material Consumed	150000	Selling Expenses	42000
Wages	60000	Depreciation on fixed assets	50000

The article produced is subject to excise duty equal to 10% of the selling price. The duty is payable on March 31, June 30, September 30, and December 31 for sales up to February 28, May 31, August 31

and November 30 respectively.

Prepare cash Budget for each of the six months indicating the requirement of the working capital.

Solution:

Cash Budget
For the six month ended on June 30, 2010

Particular	January Rs	February Rs.	March Rs.	April Rs.	May Rs.	June Rs.
Receipts:						
Opening Balance	-	(-)7500	(-) 45000	(-) 39200	(-) 26200	(-)13200
Cash Sales	-	18000	18000	18000	18000	18000
Receipts from customer	-	-	54000	54000	54000	54000
Cash Available (A)		10500	27000	32800	45800	58800
Payments:						
Wages	7500	10000	10000	10000	10000	10000
Materials	-	25000	25000	25000	25000	25000
Manufacturing Exp.	-	8000	8000	8000	8000	8000
Administrative Exp.	-	9000	9000	9000	9000	9000
Selling Exp.	-	3500	7000	7000	7000	7000
Excise Duty	-	-	7200	-	-	21600
Total Payments(B)	7500	55,500	66200	59000	59000	80600
Closing Balance (A-B)	(-) 7500	(-) 45000	(-) 39200	(-) 26200	(-) 13200	(-) 21800

Note:- The company needs overdraft facility to the extent indicated above for every month.

Illustration: 6

The following data are available to you. You are required to prepare a cash budget according to Adjusted Profit and loss Method.

Balance Sheet As On 31st December, 2010

Liabilities	Amount Rs.	Assets	Amount Rs.
Share Capital	100000	Premises	50000
General Reserve	20000	Machinery	25000
Profit and Loss A/c	10000	Debtors	40000
Creditor	50000	Closing Stock	20000
Bills Payable	10000	Bills Receivable	5000
Outstanding Rent	2000	Prepaid Commission	1000
		Bank	51000
	<u>192000</u>		<u>192000</u>

**Projected Trading and Profit and Loss Account
for the year ending 31st December, 2010**

		Rs.			Rs.
To Opening Stock		20000	By Sales		<u>200000</u>
To Purchases		150000	By Closing Stock		<u>15000</u>
To Ocori		2000			
To Gross Profit C/d		43000			
		<u>215000</u>			<u>215000</u>
To Interest		3000	By Gross Profit b/d		43000
To Salaries		6000	By Sundry Receipts		5000
To Depreciation (10% on premises and Machinery)		7500			
To Rent	6000				
Less: Outstanding (Previous year)	<u>2000</u>				
	4000				
Add: outstanding (current year)	<u>1000</u>	5000			
To Commission	3000				
Add- Prepaid (Previous Year)	<u>1000</u>	4000			
To Office expenses		2000			
To Net profit c/d		1000			
		19500			
		<u>48000</u>			<u>48000</u>
To Dividends		8000	By Balance of Profit (from last year)		10000
To Addition to Reserves		4000			<u>19500</u>
To Balance c/d		<u>17500</u>			<u>29500</u>
		<u>29500</u>			

Closing Balance of Certain Items:

Share Capital Rs. 120000, 10% Debentures Rs. 3000, Creditors Rs. 40000, Debtors Rs. 60000
Bills Payable Rs. 12000, Bill Receivable Rs. 4000, Furniture Rs.15000 and Plant Rs. 50000 (Both these
assets are purchased at the end of year).

Solution:

Cash Budget

For the period ending 31st December 2010

	Rs.	Rs.
Opening balance as on 1st January 2010		51000
Add: Net profit of the Year	19500	
Depreciation	7500	
Decrease in Bill Receivable	1000	
Increase in Bill Payable	2000	

	Issue of share Capital	20000	
	Issue of Debentures	30000	
	Decrease in Prepaid commission	1000	
	Decrease of Stock	5000	86000
			137000
Less:	Purchase of Plant	50000	
	Purchase of Furniture	15000	
	Increase of debtors	20000	
	decrease of Creditors	10000	
	Decrease in outstanding Rent	1000	
	Dividend Paid	8000	104000
	Closing Balance as on 31st December 2010		Rs. 33000

Illustration: 7

Prepare the cash Budget using Balance Sheet method on the basis of figures given in illustration 6.

Solution:

**Budgeted Balance Sheet
as on 31st December, 2010**

Liabilities	Amount Rs.	Assets	Amount Rs.
Shares Capital	120000	Premises	50000
10% Debentures	30000	Less: Depreciation	<u>5000</u> 45000
General Reserve	24000	Machinery	25000
(Rs. 20000 +Rs. 40000)			
Profit and Loss A/c	17500	Less: Depreciation	<u>2500</u> 22500
Creditors	40000	Furniture	15000
Bill Payble	12000	Debtors	60000
Outstanding Rent	1000	Bill Receivable	4000
		Plant	50000
		Closing Stock	15000
		Bal. (Balancing Figures)	<u>33000</u>
	<u>244500</u>		<u>244500</u>

- 7. Capital Expenditure Budget:** The budget is the plan of the proposed outlay on fixed assets such as land, buildings, plant and machinery. The budget is prepared after taking into account the available productive capacities, probable reallocation of existing assets and possible improvement in production technique. etc.

Capital expenditure budget serves the following purposes:

- (a) It facilitates long term planning and policy-making.
- (b) It facilitates replacing the old machinery by latest machinery or to change the methods of production for reducing costs.

- (c) It helps in the estimates of capital requirement after taking into account the disposable value of old assets.
- (d) It helps in preparation of cash budget and also assessing the capital cost of improving working conditions or adopting safety measures, etc.
- 8. Master Budget:** It is a summary budget incorporating all functional budgets in a capsule form. It interprets different functional budgets and covers within its range the preparation of projected income statement and projected balance sheet.

Illustration:8

A Glass Manufacturing Company requires you to calculate and present the budget for the next year from the following information.

Sales:

Toughened glass	Rs. 300000
Bent toughened glass	Rs. 500000
Direct material Cost	60% of sales
Direct Wages	20 Workers @ Rs 150 per month
Store and spares	2.5% on Sales
Depreciation on Machinery	Rs. 12600
Light and Power	Rs. 5000

Factory Overhead:

Indirect Labour:

- Works Manager Rs. 500 per month
- Foreman Rs. 400 per month

Repairs and maintenance 10% on direct wages

Administration, selling and distribution expenses Rs. 14000 per year.

Solution

Master Budget

For the period ending on.....

Sales (as per Sales Budget)	Rs.	Rs.	Rs.
Toughened Glass..... Units @ Rs.	300000		
Bent toughened glass Units @ Rs	<u>500000</u>		800000
Less: Cost of Production (as per Cost of Production Budget):			
Direct Materials (..... Units @ Rs.)	480000		
Direct Wages	<u>36000</u>		
Prime Cost		516000	
Factory Overhead:			
Variable: Stores and Spares (2.5% of Sales)	20000		
Light and Power	5000		
Repair and Maintenance	<u>8000</u>	33000	
Fixed : Works Manager's Salary	6000		
Forman's Salary	4800		
Depreciation	12600		

Sundries	<u>3600</u>	<u>27000</u>	
Work Cost			<u>576000</u>
Gross Profit			224000
Less: Administration, Selling and Distribution Overhead			<u>14000</u>
			<u>210000</u>

13.10.3 Classification According to Flexibility

Budget can also be classified in the following categories:

- 1. Fixed Budget:** A budget prepared on the basis of a standard or a fixed level of activity is called a fixed budget. It does not change with the change in the level of activity. If the output and sales do not fluctuate from year to year or if an accurate prediction of the same can be made, a fixed budget can be prepared.
- 2. Flexible Budget:** A Budget designed in manner so as to give the budgeted cost of any level of activity is termed as a flexible budget. Such a budget is prepared after considering the fixed and variable elements of cost and the change that may be expected for each item at various levels of operation.

Illustration : 9

Prepare a flexible budget for production at 80% and 100% activity on the basis of the following information:

Production of 50% capacity	5000 Units
Raw Material	Rs. 80 Per Unit
Direct Labour	Rs. 50 Per Unit
Expenses	Rs. 15 Per Unit
Factory Expenses	Rs. 50,000 (50% fixed)
Administration Expenses	Rs. 60,000 (60% variable)

Solution

Flexible Budget

	Particular	Activity	
		80% (8000 Units)	100% (10000 Units)
		Rs.	Rs.
A	Fixed Expenses		
	Fixed factory expenses (50% of Rs. 50,000)	25,000	25,000
	Fixed Administrative expenses (40% of Rs. 60,000)	24,000	24,000
	Total	49,000	49,000
B	Variable Expenses		
	Material @ 80 Per Unit	6,40,000	8,00,000
	Labour @ 50 Per Unit	4,00,000	5,00,000
	Expenses @ 15 Per Unit	1,20,000	1,50,000
	Factory Expenses @ 5 Per Unit	40,000	50,000
	Administrative Expenses @ 4.80 Per Unit	57,000	72,000
	Total	13,06,600	15,72,000
	Total (A+ B)	13,55,600	16,21,000

Calculation of Factory Expenses per unit

Total - Fixed

$$\text{Rs. } 50,000 - 25,000 = \frac{25,000}{5,00} = @ 5 \text{ Per Unit}$$

Calculation of Administrative Expenses per unit

$$\text{Rs. } 60,000 \times 60\% = \frac{36,000}{5,00} = @ 7.20 \text{ Per Unit}$$

Activity

When production of a Factory has a variation, then which budget is suitable to know cost of production?

13.11 Summary

A budget is in the nature of an estimate for future actions to coordinate and control the use of resources for a specified period. It is used as a standard with which actual performance is measured. Budgeting is a process which includes both budget and budgetary control. Budget is a planning function and budgetary control is a system and technique which uses budgets as a means of controlling all aspects of the business and is designed to assist management in the measurement of actual performance, in the analysis of deviations from the budgeted targets and to evaluate performance and efficiency of the operations. A good budgeting system requires good organizational system with the lines of authority and responsibility clearly mentioned. The important essentials required for the establishment of a sound system of budgeting includes budget centers, budget committee, budget officer, budget manual, budget period, budget key factor, forecasting, determining level of activity and preparation of budget. Budget may be classified on the basis of time, function and flexibility.

Budgeting is the main instrument for projecting the future costs and revenues and for financial control of the organization. Preparation of budgets involves a number of forecasts or projections, it starts with sales forecasting and ends with the compilation of master budget.

13.12 Key Words

- **Budget:** A comprehensive and coordinated plan, expressed in financial terms, for the operations and resources of an enterprise for some specific period in the future.
- **Budgeting:** The process of preparing plans for future activities of business enterprise for attaining the objectives of an organization.
- **Budgetary control:** The establishment of budgets relating to the responsibilities of executives to the requirement of a policy and the continuous comparison of the actual with budgeted results either to secure by individual action the objectives of that policy or to provide a basis for its revision.
- **Budget key factor:** The factor which at a particular time or over a period will limit the activities of an undertaking.
- **Forecasting:** A statement of events likely to occur.
- **Master Budget:** A summary budget incorporating all functional budgets which is finally approved, adopted and employed.
- **Cash Budget:** A summary statement of future cash receipts and payments over a projected time period.

13.13 Self Assessment Test

1. "A budget is a means and budgetary control is the end result". Explain.
2. What is budgeting? What are the advantages and limitations of Budgeting?
3. What do you mean by Budgeting? Mention different types of budgets that a big industrial concern would normally prepare.
4. Write short notes on the following:
 - (a) Sales Budget
 - (b) Material Budget
 - (c) Production Cost Budget
5. What is a Master Budget? What are its components?
6. From the following particulars, prepare a Production budget of a manufacturing company for year ended 31st March 2010:-

Product	Sales Budget (Units)	Estimated Stock (units)	
		01-04-2009	31-03-2010
A	7500	700	750
B	5000	250	725
C	3500	400	400

(Ans: A: 7550 Units, B: 5475 Units, C: 3500 Units)

7. Prepare a material procurement budget (in Units) from the following Information:

Estimated sales of product 40000 units. Each unit of the product requires 3 units of Material P and 4 units of Material Q Estimated opening balance at the Beginning of the next year:

	Units
Finished products	5000
Material P	19000
Material Q	31,000

The desired level of closing balances at the end of the next year:

Finished Product	7000
Material P	23,000
Material Q	35,000

(Ans. Production 42000 Units, Material required: Material P: 130000 Units, Material Q: 172000 Units)

8. A company produces and sells three products: Product X, Product Y and Product Z. The company has divided its market into two areas as East zone and West zone. The actual sales for the year 2010 were as follows:

Products	East Zone		West Zone	
	Price per unit (Rs.)	No. of units	Price per unit (Rs.)	No. of units
X	12	800000	12	500000
Y	15	500000	15	700000
Z	16	600000	16	600000

For the current year i.e. 2009, it is estimated that the sales of product X will go up by 10% in West zone and of product Z by 5000 Units in East zone. The company plans to launch an intensive advertisement campaign through which budgeted figures for product Y are to be increased by 20% in both the Zones.

There will be no change in the prices of the Product X and Z but price of product Y will be reduced by Rs. 1.

You are required to prepare a sales budget for the year 2010.

Ans:

	East Zone (Units)	West Zone (Units)	Total Budget (Rs.)
Product X	800000	550000	16200000
Product Y	600000	84000	20160000
Product Z	650000	600000	20000000

9. Jammu Co. Ltd. has three sales divisions at Jodhpur, Delhi, Patna. It sells two products-I and II. The budgeted sales for the year ending 31st December, 2009 at each place are given below:

Jodhpur	Product I	50000 units @ Rs. 16 each
	Product II	35000 units @ Rs. 10 each
Delhi	Product II	55000 Units @ Rs. 10 each
Patna	Product I	75000 Units @ Rs. 16 each

The actual sales during the same period were:

Jodhpur	Product I	62500 units @ Rs. 16 each
	Product II	37500 units @ Rs. 10 each
Delhi	Product II	62500 Units @ Rs. 10 each
Patna	Product I	77500 Units @ Rs. 16 each

From the reports of the sales department it was estimated that the sales budget for the year ending 31st December 2010 would be higher than 2009 budget in the following.

Jodhpur	Product I	4000 Units
	Product II	2500 Units
Delhi	Product II	6500 Units
Patna	Product I	5000 Units

Intensive sales campaign in Delhi and Patna is likely to result in additional sales of 12500 units of product I in Delhi and 9000 Units of product II in Patna. Let us prepare a sales budget for the period ending 31st December 2010.

(Ans:)	Jodhpur	Product I	54000 Units
		Product II	37500 Units
	Delhi	Product I	12500 Units
		Product II	61500 Units
	Patna	Product I	80000 Units
		Product II	9000 Units)

10. Draw a Material Procurement Budget (Quantitative) from the following information:

Estimated sales of a product are 20000 units. Each units of the product requires 3 Units of material X and 5 Units of Material Y.

Estimated opening balance at the commencement of next year:

Finished Product	2500 Kgs.
Material X	6000 Units
Material Y	10000 Units
Material on Order:	
Material X	3500 Units
Material Y	5500 Units

The desirable closing balance at the end of the next year:

Finished Product

3500 Units	
Material X	7500 Units
Material Y	12500 Units
Material on order:	
Material X	4000 Units
Material Y	5000 Units

11. A company is expecting to have Rs. 500000 cash in hand on 1st April, 2010 and it requires you to prepare an estimate of cash position during the three months, April to June 2010. The following information is supplied to you:

	Sales	Purchase	Wages	Expenses
February	1400000	800000	160000	120000
March	1600000	1000000	160000	140000
April	1840000	1040000	180000	140000
May	2000000	1200000	200000	160000
June	2400000	1100000	240000	180000

Additional Information:

- (a) The credit period allowed by supplies is two months.
 - (b) 25% of sales is for cash and credit period allowed to customers is one month.
 - (c) Delay in payment of wages and expenses is one month.
 - (d) Income tax Rs. 500000 is to be paid in June 2010.
- (Ans: April Rs. 1060000, May Rs. 1620000, June Rs. 1820000)

12. From the following information, you are required to prepare cash budget according to Adjusted Profit and Loss method as well as Balance Sheet Method.

Balance Sheet as on 01-01-2010

Liabilities	Rs.	Assets	Rs.
Share capital	50000	Debtors	500000
Reserves	1000000	Stock & Store	300000
Debentures	300000	Fixed assets	1300000
Public deposits	200000	Cash balance	100000
Current liability	200000		
	2200000		2200000

Projected Trading and Profit and Loss A/c for the year ending 31-12-2010

Particular	Rs.	Particular	Rs.
To Opening Stock	300000	By Sales	1500000
To Direct Cost of production	1200000	By closing Stock	600000
To Depreciation			
To variable selling and distribution costs	100000		
	200000		
To net profit c/d	300000		
	2100000		2100000
To Dividends	50000	By net profit b/d	300000
To Balance c/d	250000		
	300000		300000

Additional Information :

Collection of debtors and sales proceeds during the year Rs. 1700000, refund of public deposits Rs. 100000 increase in current liability Rs. 50000.

(Ans: Cash balance as on 31.12.2010: Rs. 300000, Debtors as on 31.12.2010: Rs. 300000 (opening debtors Rs. 500000+sales Rs. 1500000- Collection form debtors Rs. 1700000))

13.14 Reference Books

Agrawal , Sharma, Agrawal, Shah & Agrawal, *Financial Accounting and Decision Making*.

Agrawal M.R., *Management Accounting*.

Jain, Khandelwal, Pareek & Dave, *Financial Accounting and Decision Making*.

Ravi, M. Kishore, *Cost Accounting*.

Unit-14 Tools of Financial Analysis - Ratio Analysis

Unit Structure

- 14.0 Objectives
- 14.1 Introduction
- 14.2 Meaning
- 14.3 Importance
- 14.4 Classification of Ratios
- 14.5 Limitations
- 14.6 Summary
- 14.7 Key Words
- 14.8 Self Assessment Test
- 14.9 Reference Books

14.0 Objectives

After studying this unit, you should be able to understand:

- The concept of Ratio analysis.
- Importance of Ratio analysis.
- The various types of Ratio analysis and their calculations.
- The various limitations associated with Ratio analysis.

14.1 Introduction

To make rational decisions in keeping with the objectives of the firm, the financial manager must have analytical tools. The firm itself and outside providers of capital-creditors and investors-all undertake financial statement analysis. The type of analysis varies according to the specific interests of the party involved. Trade creditors (suppliers owed money for goods and services) are primarily interested in the liquidity of a firm. The claims of bondholders, on the other hand, are long term. Accordingly, bondholders are more interested in the cash-flow ability of the firm to service debt over a long period of time. They may evaluate this ability by analyzing the capital structure of the firm, the major sources and uses of funds, the firm's profitability over time, and projections of future profitability.

Investors in a company's common stock are principally concerned with present and expected future earnings as well as with the stability of these earnings about a trend line. As a result, investors usually focus on analyzing profitability. They would also be concerned with the firm's financial condition in so far as it affects the ability of the firm to pay dividends and avoid bankruptcy.

Internally, management also employs financial analysis for the purpose of internal control and to better provide what capital suppliers seek in financial condition and performance from the firm. From an internal control standpoint, the management needs to undertake financial analysis in order to plan and control effectively. To plan for the future, the financial manager must assess the firm's present financial position and evaluate opportunities in relation to this current position. With respect to internal control, the financial manager is particularly concerned with the return on investments provided by the various assets of the company and in the efficiency of asset management. Finally, to bargain effectively for outside funds, the

financial manager needs to discuss all aspects of financial analysis that outside suppliers of capital use in evaluating the firm. We see, then, that the type of financial analysis undertaken varies according to the particular interests of the analyst.

14.2 Meaning

Ratio analysis is a widely used tool of financial analysis. It is defined as the systematic use of ratio to interpret the financial statements so that the strengths and weaknesses of a firm as well as its historical performance and current financial condition can be determined. The term ratio refers to the numerical or quantitative relationship between two variables.

14.3 Importance

- 1. Helps in evaluating the firm's performance:** With the help of ratio analysis conclusion can be drawn regarding several aspects such as financial health, profitability and operational efficiency of the undertaking. Ratio points out the operating efficiency of the firm i.e. whether the management has utilized the firm's assets correctly to increase the investor's wealth. It ensures a fair return to its owners and secures optimum utilization of firm's assets.
- 2. Helps in inter-firm comparison:** Ratio analysis helps in inter-firm comparison by providing necessary data. An inter-firm comparison indicates relative position. It provides the relevant data for the comparison of the performance of different departments. If comparison shows a variance, the possible reasons of variations may be identified and if results are negative, the action may be initiated immediately to bring them in line.
- 3. Simplifies financial statement:** The information given in the basic financial statements serves no useful purpose unless it is interrupted and analyzed in some comparable terms. The ratio analysis is one of the tools in the hands of those who want to know something more from the financial statements in the simplified manner.
- 4. Helps in determining the financial position of the concern:** Ratio analysis facilitates the management to know whether the firm's financial position is improving or deteriorating or is constant over the years by setting a trend with the help of ratios. The analysis with the help of ratio analysis can know the direction of the trend of strategic ratio may help the management in the task of planning, forecasting and controlling.
- 5. Helpful in budgeting and forecasting:** Accounting ratios provide a reliable data, which can be compared, studied and analyzed. These ratios provide sound footing for the future. The ratios can also serve as a basis for preparing budgeting future line of action.
- 6. Helps in analyzing liquidity position:** With the help of ratio analysis conclusions can be drawn regarding the liquidity position of a firm. The liquidity position of a firm would be satisfactory if it is able to meet its current obligation when they become due. The ability to meet short term liabilities is reflected in the liquidity ratio of a firm.
- 7. Helps in assessing long term solvency position:** Ratio analysis is equally useful for assessing the long term financial ability of the firm. The long term solvency is measured by the leverage or capital structure and profitability ratio which shows the earning power and operating efficiency. Solvency ratio shows relationship between total liability and total assets.
- 8. Helps in measuring operational efficiency:** Yet another dimension of usefulness of ratio analysis, relevant from the view point of management is that it throws light on the degree of efficiency in the various activity. Ratios measures this kind of operational efficiency.

17.4 Classification of Ratios

Different ratios are used for different purposes. These ratios can be grouped into various classes according to the financial activity. Ratios are classified into four broad categories.

14.4.1 Liquidity Ratio

Liquidity ratio measures the firm's ability to meet its current obligations i.e. ability to pay its obligations when they become due. They compare short-term obligations to short-term (or current) resources available to meet these obligations. From these ratios, much insight can be obtained into the present cash solvency of the firm and the firm's ability to remain solvent in the event of adversity. Commonly used liquidity ratios are:

- (A) **Current ratio:** Current ratio is the ratio, which expresses relationship between current asset and current liabilities. It shows a firm's ability to cover its current liabilities with its current assets. Current assets are those which can be converted into cash within a short period of time, normally not exceeding one year. The current liabilities are of short- term maturity.

$$\text{Current ratio} = \frac{\text{Current Assets}}{\text{Current liabilities}}$$

Ideal Ratio is 2:1

- (B) **Quick/ Liquid Ratio:** Quick Ratio is the measure of the instant debt paying ability of the business enterprise, hence it is also called 'quick ratio' or 'acid test ratio'. It measures the ability of the firm to meet its short term obligations as and when due without relying upon the realization of stock.

Quick ratio is considered to be superior to current ratio in evaluating the liquidity position of the firm. Sometimes, a situation arises when the firm has to meet its current liabilities immediately. In such cases, it can pay off these liabilities out of its quick assets of equal value without any difficulty. Thus, quick ratio is an indication of a firm's ability to meet unexpected demand for working capital.

$$\text{Quick Ratio} = \frac{\text{Quick Assets}}{\text{Quick Liabilities}} = \frac{\text{Current Assets} - (\text{Stock} + \text{prepaid expenses})}{\text{Current Liabilities} - \text{Bank overdraft}}$$

Ideal Ratio is 1:1

- (C) **Absolute Liquidity Ratio:** The absolute liquidity ratio is the relationship between the absolute liquid or super quick assets to liquid or quick liabilities. This is variation of quick ratio and is even called, 'super quick ratio'.

$$\text{Absolute liquidity Ratio} = \frac{\text{Cash} + \text{Bank} + \text{Marketable Securities}}{\text{Quick Liabilities}}$$

A standard of 0.5:1 in absolute liquidity ratio is an acceptable norm, because fifty paise worth of absolute liquid assets are considered sufficient for one rupee worth of current liabilities.

Activity

Which ratio indicates the ability to meet unexpected demand of working capital?

Illustration 1:

Following is the Balance Sheet of SUN Ltd. as on 31st March 2010:

Liabilities	Rs.	Assets	Rs.
Share Capital:		Fixed Assets:	
4,000 Equity Shares of Rs. 100/-each.	4,00,000	Buildings	1,70,000
Reserve & Surplus:		Furniture	1,14,000
General Reserve	20,000	Machinery	1,10,000
Capital Reserve	8,000	Investments	20,000
Current Liabilities:		Current Assets:	
Creditors	6,000	Stock	10,000
Bills Payables	4,000	Debtors	7,000
Outstanding Expenses	2,000	Bills Receivable	5,000
		Cash & Bank Balance	2,000
		Marketable Securities	2,000
	4,40,000		4,40,000

Calculate the following ratios:

- Current Ratio,
- Quick Ratio,
- Absolute Liquidity Ratio

Solution:

$$(a) \quad \text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{26,000}{12,000} = 2.17 : 1$$

$$\text{Current Assets} = 10,000 + 7,000 + 5,000 + 2,000 + 2,000 = \text{Rs. } 26,000$$

$$\text{Current Liabilities} = 6,000 + 4,000 + 2,000 = \text{Rs. } 12,000$$

$$(b) \quad \text{Quick Ratio} = \frac{\text{Quick Assets}}{\text{Quick Liabilities}} = \frac{16,000}{12,000} = 1.33 : 1$$

$$\text{Quick Assets} = \text{Current Assets} - \text{Stock} = 26,000 - 10,000 = \text{Rs. } 16,000$$

$$\text{Quick Liabilities} = \text{Current Liabilities} - \text{Bank overdraft} = \text{Rs. } 12,000$$

$$(c) \quad \text{Absolute Liquid Ratio} = \frac{\text{Absolute Liquid Assets}}{\text{Quick Liabilities}} = \frac{4,000}{12,000} = 0.33 : 1$$

$$\text{Absolute Liquid Assets} = \text{Cash \& Bank Balance} + \text{Marketable Securities}$$

$$= 2,000 + 2,000$$

$$= \text{Rs. } 4,000$$

14.4.2 Leverage or Capital Structure Ratio

Leverage or capital structure ratios are the ratios, which indicate the relative interest of the owners and the creditors in an enterprise. These ratios indicate efficiency of the funds provided by the long-term creditors and owners. To judge the long term financial position of the firm, following ratios are applied.

- (A) **Debt–Equity Ratio:** Debt-Equity ratio expresses the relationship between debt and equity. This ratio explains how far owned funds are sufficient to pay outside liabilities. It is calculated by the following formula:

$$\text{Debt - Equity Ratio} = \frac{\text{Debt or External liabilities}}{\text{Equity or Net worth}}$$

Debt = Long-term and Short-term loans + Current Liabilities

Net worth = Share Capital + Reserves & Surpluses

A high Debt-Equity ratio shows that the claims of creditors are greater than those of the owners. A very high ratio is unfavorable from the owner's point of view. This causes hindrance in the firm's operations due to the increasing pressure and interference of creditors in the management. A high debt company finds difficulty in raising additional debt.

A low Debt-Equity ratio shows a greater claim of owners than creditors. From the creditor's point of view, it represents a larger margin of safety since owners equity is treated as margin of safety by creditors.

- (B) Proprietary Ratio:** This ratio is also known as 'Net Worth to Total Assets Ratio' or 'Shareholders Equities to Total Equities Ratio' or 'Equity Ratio'.

This ratio establishes relationship between Net Worth and Total Tangible Assets.

$$\text{Proprietary Ratio} = \frac{\text{Proprietor's Fund}}{\text{Total tangible Assets}}$$

This ratio shows how much capital is introduced by the owner in business. Higher ratio means a sound position of business, because it shows that the organization is not running through outside funds which mean less interference and pressure of outsiders.

- (C) Interest Coverage Ratio:** This ratio indicates the relationship between net profits before interests and taxes on long term debt. The objective of calculating this ratio is to measure the debt servicing capacity of a firm so far as fixed interest on long term debt is concerned.

$$\text{Interest Coverage Ratio} = \frac{\text{Net Profit before Interest and Tax}}{\text{Interest payable on Long - term debt}}$$

Interest Coverage ratio shows the number of times the interest charges are covered by the income out of which they will be paid. Higher the ratio the more beneficial for the lenders, because this ratio measures the margin of safety for the lenders.

Illustration 2:

From the following statement, calculate:

- (a) Debt-Equity Ratio, (b) Proprietary Ratio.

Balance Sheet

As on 31st March, 2010

Liabilities	Rs.	Assets	Rs.
Share Capital	1,00,000	Fixed Assets	2,70,000
Reserves & Surplus	50,000	Stock	80,000
Debentures	2,00,000	Debtors	30,000
Creditors	30,000	Cash at Bank	20,000
Bills Payable	20,000		
	4,00,000		4,00,000

Solution:

$$\begin{aligned} \text{(a) Debt - Equity Ratio} &= \frac{\text{Debt or External Liabilities}}{\text{Equity or Net Worth}} \\ &= \frac{\text{Rs. 2,50,000}}{\text{Rs. 1,50,000}} = 1.67 : 1 \end{aligned}$$

$$\begin{aligned} \text{(b) Proprietary Ratio} &= \frac{\text{Proprietary Funds or Net Worth}}{\text{Total Tangible Assets}} \\ &= \frac{\text{Rs. 1,50,000}}{\text{Rs. 4,00,000}} = 0.38 : 1 \end{aligned}$$

Working notes:

1. External Liabilities = Debentures + Creditors + Bills Payable
= Rs. (2,00,000+30,000+20,000)
= Rs. 2,50,000
2. Net Worth = Share Capital + Reserve & Surplus
= Rs. (1,00,000+50,000)
= Rs. 1,50,000
3. Tangible Assets = Fixed Assets + Stock + Debtors + Cash at Bank
= Rs. (2,70,000+80,000+30,000+20,000)
= Rs. 4,00,000

Illustration 3:

From the following information, calculate interest coverage ratio:

	Rs.
Net Profit after Tax	4,00,000
Rate of Income tax	50%
Fixed Interest Charges	60,000

Solution:

$$\begin{aligned} \text{Interest Coverage Ratio} &= \frac{\text{Net Profit before interest and tax}}{\text{Fixed interest charges}} \\ &= \frac{\text{Net profit after tax} + \text{Tax} + \text{Interest}}{\text{Fixed interest charges}} \\ &= \frac{\text{Rs. 4,00,000} + \text{Rs. 4,00,000} + \text{Rs. 60,000}}{\text{Rs. 60,000}} \\ &= \frac{\text{Rs. 8,60,000}}{\text{Rs. 60,000}} = 14.33 \text{ Times} \end{aligned}$$

Working Notes:	Rs.
Net profit before tax	8,00,000
$\frac{(4,00,000 \times 100)}{50}$	
Less: Tax @ 50%	<u>4,00,000</u>
Net profit after tax	<u>4,00,000</u>

14.4.3 Profitability ratio

Profitability ratios are the best indicators of overall efficiency of the business concern, because they compare return of value over and above the value put into business with sales or service carried on by the firm with the help of assets employed. Profitability ratio can be determined on the basis of:

- Sales
- Investment

I. Profitability Ratios related to Sales:

- (A) **Gross Profit Ratio:** The gross profit to sales ratio establishes relationship between gross profit and sales to measure the relative operating efficiency of the firm to reflect pricing policy. Gross profit ratio indicates the average margin on the goods sold. It shows whether the selling prices are adequate or not. It also indicates the extent to which selling prices may be reduced without resulting in losses.

A low gross profit ratio may indicate a higher cost of goods sold due to higher cost of production. It may also be due to low selling prices. A high gross profit ratio, on the other hand, indicates relatively low cost and is a sign of good management.

$$\text{Gross profit to sales ratio} = \frac{\text{Sales} - \text{cost of goods sold}}{\text{Sales}} \times 100$$

- (B) **Net Profit Ratio:** The net margin indicates the management's ability to earn sufficient profit on sales not only to cover all revenue operating expenses of the business, the cost of borrowed funds and the cost of goods or servicing, but also to have sufficient margin to pay reasonable compensation to shareholders on their contributions to the firm.

$$\text{Net profit Ratio} = \frac{\text{Net profit after interest and taxes}}{\text{Sales}} \times 100$$

Illustration 4:

Following is the Trading and Profit & Loss A/c of A Ltd. for the year ending 31st March 2010:

Trading and Profit & Loss A/c For the year ended 31st March, 2010

Items	Rs.	Items	Rs.
To Opening Stock	1,10,000	By Sales	6,50,000
To Purchases	4,00,000	By Closing Stock	1,60,000
To Wages	1,00,000		
To Gross Profit c/f	2,00,000		
	8,10,000		8,10,000
To Interest	3,000	By Gross Profit b/f	2,00,000
To Administrative Expenses	60,000		
To Net Profit	1,37,000		
	2,00,000		2,00,000

From the above information, calculate the following ratios:

1. Gross Profit Ratio 2. Net Profit Ratio

Solution:

$$1. \quad \text{Gross Profit Ratio} = \frac{\text{Gross Profit}}{\text{Sales}} \times 100$$

$$= \frac{2,00,000}{6,50,000} \times 100 = 30.77\%$$

$$2. \quad \text{Net Profit Ratio} = \frac{\text{Net Profit}}{\text{Sales}} \times 100$$

$$= \frac{1,37,000}{6,50,000} \times 100 = 21.07\%$$

II. Profitability Ratios related to Investments:

(A) **Return on Equity or Return on Shareholder’s Fund:** This ratio measures the return on the total equity of the shareholders. This ratio is also known as ‘Return on Shareholder’s Fund’.

$$\text{Return on assets} = \frac{\text{Net profit after interest and taxes}}{\text{Shareholder’s Fund}} \times 100$$

Net profit for the purpose of this ratio is calculated after charging interest on long term liabilities and payment of taxes. Shareholder’s funds include equity capital, preference capital, capital reserve, general reserve and other undistributed profits.

(B) Return on Capital Employed (ROCE) or Return on Investment (ROI):

This is most important test to measure overall profitability of a business. It is ascertained by comparing profit earned and capital (or funds) employed to earn it.

$$\text{Return on capital employed} = \frac{\text{Net profit after interest and taxes}}{\text{Total capital employed}} \times 100$$

Capital Employed = (Share capital + Reserves & Surpluses + Long term loans) - Fictitious assets
 ROI is the only ratio which measures the overall performance of the business from the view point of profitability. This ratio indicates how well the management has utilized the funds supplied by the owners and creditors. In other words, this ratio is intended to measure the earning power of the net assets of the business. The higher the ROI, the more efficient the management is considered to be in using the funds available.

Illustration 5:

	Rs.
Net Worth or Shareholders fund	8,25,000
Capital Employed	13,10,000
Net Profit after Tax	2,25,000

From the above information, calculate the following ratios

1. Return on Capital Employed
2. Return on Shareholders Fund

Solution:

$$1. \quad \text{Return on Capital Employed} = \frac{\text{Net Profit after Interest \& Taxes}}{\text{Capital Employed}} \times 100$$

$$= \frac{2,25,000}{13,10,000} \times 100 = 17.18\%$$

$$2. \quad \text{Return on Shareholders Fund} = \frac{\text{Net Profit after Interest \& Taxes}}{\text{Shareholders Fund}} \times 100$$

$$= \frac{2,25,000}{8,25,000} \times 100 = 24.85\%$$

Activity

By which ratio can overall profitability be determined?

14.4.4 Activity Ratio or Efficiency Ratio

Activity ratios are sometimes called efficiency ratios. Activity ratios are concerned with how efficiency of the assets of the firm are managed. These ratios are also known as turnover ratios because they indicate the speed with which assets are being converted or turned into sales. These ratios express relationship between level of sales and the investment in various assets investors, receivables, fixed assets etc.

The important activity ratios are as follows:

- (A) **Inventory Turnover Ratio:** This ratio establishes a relationship between cost of goods sold and average stock. This ratio tells the rate at which stock is converted into sales.

$$\text{Inventory turnover ratio} = \frac{\text{Cost of goods sold}}{\text{Average Stock}}$$

$$\text{Cost of goods sold} = \text{Opening Stock} + \text{Purchase} + \text{Direct expenses} - \text{Closing Stock}$$

Or

$$\text{Net Sales} - \text{Gross profit}$$

* If cost of goods sold and average stock can not be calculated, then sales and closing stock can be used, and in that condition:-

$$\text{Inventory Turnover Ratio} = \frac{\text{Net Sales}}{\text{Closing Stock}}$$

This ratio provides how many times purchases are made during the year. Higher ratio shows that more sales are being produced by a unit of investment in stocks. Companies in which stock turnover ratio is high generally work on comparatively low margin of profit.

- (B) **Debtors Turnover Ratio:** This ratio shows how quickly debtors are converted into cash. The objective of calculating this ratio is to determine the efficiency with which the trade debtors are managed.

$$\text{Debtors turnover ratio} = \frac{\text{Net credit Sales}}{\text{Average Receivables}}$$

$$\text{Average Receivables} = \frac{(\text{Opening debtors \& B/R}) + (\text{Closing Debtors \& B/R})}{2}$$

- (C) **Average Collection Period Ratio or Debtor's Velocity:** This period indicates an average period for which the credit sales remain outstanding and measures the quality of debtors. It indicates the speed with which the money is collected from debtors.

$$\text{Average Collection Period} = \frac{\text{Average receivables}}{\text{Average Credit Sales}} \times 365/52/12$$

Activity

By which ratio can we judge the period for which the credit sales remain outstanding?

- (D) **Working Capital Turnover Ratio:** This ratio shows the number of times the working capital turns in trading transaction. If it has an increasing trend over the previous year it shows that the working capital is being used efficiently.

The higher the ratio the less is the investment in working capital and the greater are the profits. A very high ratio is a sign of over trading and a low ratio indicates under trading, i.e., working capital is not effectively used.

$$\text{Working Capital Turnover Ratio} = \frac{\text{Cost of Good Sold or Sales}}{\text{Net Working Capital}}$$

Illustration 6:

	Rs.
Opening Stock	40,000
Closing Stock	30,000
Purchases	80,000
Carriage Inwards	10,000
Sales	1,50,000
Opening Debtors	36,000
Closing Debtors	24,000

Calculate the following ratios from the above information:

1. Stock Turnover Ratio
2. Debtor's Turnover Ratio
3. Average Collection Period

Solution:

$$\begin{aligned}
 1. \quad \text{Stock Turnover Ratio} &= \frac{\text{Cost of Good Sold}}{\text{Average Stock}} \\
 &= \frac{\text{Rs. 1,00,000}}{\text{Rs. 35,000}} = 2.86 \text{ Times}
 \end{aligned}$$

Working notes:

$$\begin{aligned}\text{Cost of Good Sold} &= \text{Opening Stock} + \text{Purchases} + \text{Carriage Inwards} - \text{Closing Stock} \\ &= \text{Rs. } (40,000+80,000+10,000-30,000) \\ &= \text{Rs. } 1,00,000\end{aligned}$$

$$\begin{aligned}\text{Average Stock} &= \frac{\text{Opening Stock} + \text{Closing Stock}}{2} \\ &= \frac{\text{Rs. } (40,000 + 30,000)}{2} = \text{Rs. } 35,000\end{aligned}$$

$$\begin{aligned}2. \quad \text{Debtor's Turnover Ratio} &= \frac{\text{Net Credit Sales}}{\text{Average Receivables}} \\ &= \frac{\text{Rs. } 1,50,000}{\text{Rs. } 30,000} = \text{Rs. } 5 \text{ Times}\end{aligned}$$

Working notes:

$$\text{Average Receivables} = \frac{\text{Rs. } (36,000 + 24,000)}{2} = \text{Rs. } 30,000$$

$$\begin{aligned}3. \quad \text{Average Collection Period} &= \frac{\text{Average Receivables}}{\text{Net Credit Sales}} \times 365 \\ &= \frac{\text{Rs. } 30,000}{\text{Rs. } 1,50,000} \times 365 = 73 \text{ days}\end{aligned}$$

Illustration 7:

From the following information given below, calculate Working Capital Turnover Ratio:

Particulars	Rs.
(A) Current Assets	
Stock	15,000
Debtors	10,000
Bills Receivables	4,000
Cash at Bank	12,000
Cash in hand	4,000
	45,000
(B) Current Liabilities	
Sundry Creditors	10,000
Bills Payable	5,000
Tax Payable	4,000
Proposed Dividend	4,000
Interest Payable	2,000
	25,000

Net Sales during the year was Rs. 6,00,000

Solution:

$$\begin{aligned} 1. \quad \text{Working Capital Turnover Ratio} &= \frac{\text{Sales}}{\text{Working Capital}} \\ &= \frac{\text{Rs.6,00,000}}{\text{Rs.20,000}} \end{aligned}$$

Working notes:

$$\begin{aligned} 1. \quad \text{Working Capital} &= \text{Current Assets} - \text{Current Liabilities} \\ &= \text{Rs. (45,000-25,000)} \\ &= \text{Rs. 20,000} \end{aligned}$$

14.5 Limitations

In spite of many advantages, there are certain limitations of the ratio analysis techniques and they should be kept in mind while using them in interpreting financial statements. The following are the main limitations of accounting ratios:

- 1. Limited Comparability:** Different firms apply different accounting policies. Therefore the ratio of one firm can not always be compared with the ratio of the other firm. Some firms may value the closing stock on LIFO basis while some other firms may value on FIFO basis. Similarly there may be difference in providing depreciation of fixed assets or certain provisions for doubtful debts etc.
- 2. False Results:** Accounting ratios are based on data drawn from accounting records. In case that data is correct, then only the ratios will be correct. For example, valuation of stock is based on very high price, the profits of the concern will be inflated and it will indicate a wrong financial position. The data therefore must be absolutely correct.
- 3. Effect of Price Level Changes:** Price level changes often make the comparison of figures difficult over a period of time. Changes in price affects the cost of production, sales and also the value of assets. Therefore, it is necessary to make proper adjustment for price-level changes before any comparison.
- 4. Qualitative factors are ignored:** Ratio analysis is a technique of quantitative analysis and thus, ignores qualitative factors, which may be important in decision making. For example, average collection period may be equal to standard credit period, but some debtors may be in the list of doubtful debts, which is not disclosed by ratio analysis.
- 5. Effect of window-dressing:** In order to cover up their bad financial position some companies resort to window dressing. They may record the accounting data according to the convenience to show the financial position of the company in a better way.
- 6. Costly Technique:** Ratio analysis is a costly technique and can be used only by big business houses. Small business units are not able to afford it.
- 7. Misleading Results:** In the absence of absolute data, the result may be misleading. For example, the gross profit of two firms is 25%. Whereas the profit earned by one is just Rs. 5,000 and sales are Rs. 20,000 and profit earned by the other one is Rs. 10,00,000 and sales are Rs. 40,00,000. Although the profitability of the two firms is same yet the magnitude of their business is quite different.
- 8. Absence of standard universally accepted terminology:** There are no standard ratios, which are universally accepted for comparison purposes. As such, the significance of ratio analysis technique is reduced.

14.6 Summary

Financial analysis, though varying according to the particular interests of the analyst, always involves the use of various financial statements – primarily the balance sheet and income statement. The Balance sheet summarizes the assets, liabilities and owner's equity of a business at a point in time, and the income statement summarizes revenues and expenses of a firm over a particular period of time.

A conceptual framework of Ratio analysis provides the analyst with an interlocking means for structuring the analysis. For example, in the analysis of external financing, one is concerned with the firm's funds needs, its financial condition and performance, and its business risk. Upon analysis of these factors, one is able to determine the firm's financing needs and to negotiate with outside suppliers of capital.

Financial Ratios are the tools used to analyze financial condition and performance. We calculate ratios because in this way we get a comparison that may prove more useful than the raw numbers by themselves.

Financial ratios can be divided into five basic types: liquidity, leverage(debt), coverage, activity and profitability. No one ratio is itself sufficient for realistic assessment of the financial condition and assessment of the financial condition and performance of the firm. With a group of ratios, however, reasonable judgments can be made. The number of key ratios needed for this purpose is not particularly large – about a dozen or so.

The usefulness of ratios depends on the ingenuity and experience of the financial analyst who employs them. By themselves, financial ratios are fairly meaningless; they must be analyzed on a comparative basis. Comparing one company to similar companies and industry standards over time is crucial. Such a comparison uncovers leading clues in evaluating changes and trends in the firm's financial condition and profitability. This comparison may be historical, but it may also include an analysis of the future based on projected financial statements.

14.7 Key Words

- **Liquidity Ratios :** Liquidity ratios are used to measure the ability of the firm to meet its short-term obligations out of its short-term resources.
- **Leverage Ratios :** Leverage ratios help in measuring the long-term solvency of the business.
- **Efficiency Ratios :** Efficiency ratios helps the management to measure the effectiveness of the resources for the command of the firm.
- **Profitability Ratios:** Profitability ratios are used to measure the end result of business operations.
- **Return on Capital Employed:** This ratio expresses the relationship between profit and capital employed.
- **Gross Capital Employed :** Total assets used in business.
- **Net Capital Employed:** Total assets minus current liabilities.

14.8 Self-Assessment Test

1. What do you understand by 'RATIO ANALYSIS'? What are its limitations?
2. What is the importance of ratio analysis? Explain any two ratios each for measuring Liquidity and Profitability?
3. What are Capital Structure Ratios and Activity Ratios? Explain with illustration.
4. Following is the Balance Sheet of B Ltd. as on 31st March, 2010:

Liabilities	Rs.	Assets	Rs.
Equity Share Capital	2,00,000	Plant & Machinery	2,50,000
Profit & Loss A/c	20,000	Stock	40,000
Debentures	80,000	Sundry Debtors	30,000
Sundry Creditors	50,000	Cash in hand	25,000
Provision for Taxation	10,000	Cash at Bank	10,000
		Prepaid Expenses	5,000
	3,60,000		3,60,000

Calculate the following ratios:

- (a) Current Ratio
 - (b) Quick Ratio
 - (c) Absolute Liquidity Ratio
5. From the following Balance Sheet, calculate:
- (a) Debt-Equity Ratio
 - (b) Proprietary Ratio

Balance Sheet
As on 31st March, 2010

Liabilities	Rs.	Assets	Rs.
Equity Share Capital	4,00,000	Fixed Assets	5,00,000
Preference Share Capital	2,00,000	Investments	1,00,000
General Reserve	1,00,000	Stock	2,00,000
Profit & Loss A/c	50,000	Debtors	1,00,000
10% Debentures	1,00,000	Cash in Bank	50,000
Creditors	80,000		
Proposed Dividend	20,000		
	9,50,000		9,50,000

6. From the following information, calculate Interest Coverage Ratio:

Particulars	Rs.
Net Profit after Tax	7,00,000
Income Tax	3,00,000
Interest Charges	2,00,000

7. Trading and Profit & Loss A/c
For the year ended 31st March, 2010

Particulars	Rs.	Particulars	Rs.
To Opening Stock	1,00,000	By Sales	9,00,000
To Purchases	4,00,000	By Closing Stock	1,20,000
To Carriage	50,000		
To Wages	2,50,000		
To Gross Profit c/d	2,20,000		
	10,20,000		10,20,000
To Adm. Expenses	1,00,000	By Gross Profit b/d	2,20,000
To Selling Expenses	20,000		
To Net Profit	1,00,000		
	2,20,000		2,20,000

You are required to calculate:

- (a) Gross Profit Ratio (b) Net Profit Ratio.

8. From the following information, calculate:

- (a) Return on Capital Employed (b) Return on Shareholder's Fund.

Equity Share Capital	2,00,000
8% Preference Share Capital	1,00,000
General Reserve	1,00,000
10% Debentures	1,25,000
Current Liabilities	1,75,000
Fixed Assets	4,00,000
Current Assets	3,00,000
Net Profit after Tax	78,000

9. From the following information, calculate:

- (a) Stock Turnover Ratio
 (b) Debtors Turnover Ratio
 (c) Average Collection Period.

Particulars	Rs.
Opening Stock	1,45,000
Closing Stock	1,55,000
Opening Debtors	1,00,000
Closing Debtors	80,000
Purchases	6,10,000
Sales	7,50,000

10. From the following information, calculate Working Capital Turnover Ratio:

Particulars	Rs.
(A) Current Assets	
Inventories	40,000
Debtors	27,000
Bills Receivables	15,000
Cash in hand	20,000
	1,02,000
(B) Current Liabilities	
Creditors	26,000
Bills Payables	14,000
Outstanding Expenses	10,000
	50,000

14.9 Reference Books

Agarwal M. R., *Financial Management*

Agarwal & Agarwal, *Management Accounting*

Maheshwari S.N., *Management Accounting*

Unit -15 Funds Flow and Cash Flow Statements

Unit Structure

- 15.0 Objectives
- 15.1 Introduction
- 15.2 Meaning of Fund
- 15.3 Funds Flow Statement
- 15.4 Importance of Funds Flow Statement
- 15.5 Limitations of Funds Flow Statement
- 15.6 Steps for Funds Flow Statement
- 15.7 Sources of Funds
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- 15.9 Cash Flow Statement
- 15.10 Uses of Cash Flow Statement
- 15.11 Limitations of Cash Flow Statement
- 15.12 Distinction between Funds Flow and Cash Flow Statement
- 15.13 Distinction between Funds Flow Statement and Balance Sheet
- 15.14 Format of Cash Flow Statement
- 15.15 Method of Cash Flow Statement
- 15.16 Preparation of Cash Flow Statement
- 15.17 Summary
- 15.18 Key Words
- 15.19 Self Assessment Test
- 15.20 Reference Books

15.0 Objectives

After studying this unit you should be able to understand:

- The concept of funds flow and cash flow statements.
- Objectives behind preparing funds flow and cash flow statements.
- The various limitations associated with funds flow and cash flow statements.
- The various sources and uses of funds.
- Difference between fund flow, cash flow statements and balance sheet.
- Preparing funds flow and cash flow statements.

15.1 Introduction

The second portion of the tools of financial analysis and planning deals with the analysis of funds flows and cash flows. A flow of funds statement (also known as a sources and used of funds statement or a statement of changes in financial position) is a valuable aid to a financial manager or a creditor in evaluating

the uses of funds by a firm and in determining how the firm finances those uses. The purpose of the cash flow statement is to report a firm's cash inflows and outflows. Flow of funds is segregated into three categories: operating, investing and financing activities. Although this statement certainly serves as an aid for analyzing cash receipts and disbursements, important current period investing and financing noncash transactions are omitted. Therefore, the analyst will still want to prepare a flow of funds statement in order to fully understand the firm's funds flows.

Every business concern prepares two basic financial statements at the end of accounting period, namely, Balance Sheet or Position Statement and Profit and Loss Account or Income Statement. Balance Sheet reveals the financial position of the business concern at a certain point of time. It reveals the financial status of the business concern. The Profit and Loss Account reveals the net results of operations over a period of time i.e., how much profit was earned (or loss sustained) by the business enterprise during the accounting period.

The Balance Sheet provides only a static view of the business. It does not show the movement of funds. In business concerns, funds flow from different sources and similarly funds are invested in various sources of investment. The study and control of this fund flow process is the main objective of financial management to assess the soundness and solvency of a business and little about its flow of funds, i.e., financing and investing activities over a related period. Like Balance Sheet, even Profit and Loss Account does not depict the changes that have taken place in financial condition of a business concern between two dates. Hence, there is a need to prepare additional statement to know the changes in assets, liabilities and owner's equity between dates of two Balance Sheets. Such a statement is called Funds Flow Statement or Statement of Sources and Uses of funds.

15.2 Meaning of Funds

Funds Flow Statement is widely used tool in the hands of financial executives for analyzing the financial performance of a business concern. The term Funds has a variety of meanings:

- (a) **In a narrow sense-** In a narrow sense funds means only cash. Funds Flow Statement prepared on this basis is called Cash Flow Statement. In this type of Statement, only inflow and outflow of cash is taken into account.
- (b) **In a broader sense -** In a broader sense, the term fund refers to money value in whatever form it may exist. Here fund means all financial resources in the form of men, money, materials, and machines, etc.
- (c) **Popular Sense -** In a Popular Sense, the term fund means Working Capital i.e., the excess of current assets over current liabilities.

15.3 Meaning and Definition of Funds Flow Statement

Funds Flow Statement is prepared to study the changes in the financial position of a business over a period of time, generally one year. Funds Flow Statement reveals both inflow and outflow of funds. The inflow of funds is known as sources of funds and the outflow of funds means uses or application of funds. Funds Flow Statement highlights changes in the financial structure of an undertaking. It determines the financial consequences of business operations. Funds Flow Statement gives detailed analysis of changes in distribution of resources between two Balance Sheet dates.

Definitions:-

According to Foulke a statement of sources and application of funds is a technical device designed

to analyze the changes in the financial condition of a business enterprise between two dates.

According to Anthony Funds Flow Statement describes the sources from which additional funds were derived and the use to which these sources were put.

A Statement is either prospective or retrospective, setting out the sources and applications of the funds of an enterprise. The purpose of the statement is to indicate clearly the requirements of funds and how they are proposed to be raised and the efficient utilization and application of the same.

15.4 Importance of Funds Flow Statement

Funds Flow Statement is an analytical tool in the hands of financial manager. The basic purpose of this statement is to indicate on historical basis the changes in the working capital i.e., where funds came from and if they are used during a given period.

The utility of this statement can be measured on the basis of its contributions to the financial management. It generally serves the following purposes:-

- (1) **Analysis of Financial Position** The basic purpose of preparing the statement is to have a rich into the financial operations of the concern. It analyses how the funds were obtained and used in the past. In this sense, it is a valuable tool for the finance manager for analyzing the past and future plans of the firm and their impact on the liquidity. He can identify the reasons for the imbalances in uses of funds in the past and take necessary corrective actions. In analyzing the financial position of the firm, the Funds Flow Statement answers such questions as-
 1. Why were the net current assets of the firm down, though the net income was up or vice versa?
 2. How was it possible to distribute dividends in absence of or in excess of current income for the period?
 3. How was the sale proceeds of plant and machinery used?
 4. How was the sale proceeds of plant and machinery used?
 5. How were the debts retired?
 6. What became to the proceeds of share issue or debenture issue?
 7. How was the increase in working capital financed?
 8. Where did the profits go?

Though it is not an easy job to find the definite answers to such questions because funds derived from a particular source are rarely used for a particular purpose. However, certain useful assumptions can often be made and reasonable conclusions are usually not difficult to arrive at.

- (2) **Evaluation of the Firm's Financing** One important use of the statement is that it evaluates the firm' financing capacity. The analysis of sources of funds reveals how the firm financed its development projects in the past i.e., from internal sources or from external sources. It also reveals the rate of growth of the firm.
- (3) **An Instrument for Allocation of Resources** In modern large scale business, available funds are always short for expansion programmes and there is always a problem of allocation of resources. It is, therefore, a need of evolving an order of priorities for putting through their expansion programmes which are phased accordingly, and funds have to be arranged as different phases of programmes get into their stride. The amount of funds to be available for these projects shall be estimated by the finance with the help of Funds Flow Statement. This prevents the business

from becoming a helpless victim of unplanned action.

- (4) **A Tool of Communication to Outside World** Funds Flow Statement helps in gathering the financial status of the Business. It gives an insight into the evolution of the present financial position and gives answer to the problem 'where have our resources been moving'? In the present world of credit financing, it provides a useful information to bankers, creditors, finance, and government etc. regarding amount of loan required, its proposes, the terms of repayment an sources for repayment of loan etc. the financial manager gains a confidence born out of a study of Funds Flow Statement. In fact, it carries information regarding firm's financial policies to the outside world.
- (5) **Future Guide** An analysis of Funds Flow Statements of several years reveals certain valuable information for the financial manager for planning the future financial requirements of the firm and their nature too i.e. Short term, long-term or mid term. The management can formulate its financial policies based on information gathered from the analysis of such statements. Financial manager can rearrange the firm's financing more effectively on the basis of such information along with the expected changes in trade of payables and the various accruals. In this way, it guides the management in arranging its financing more effectively.
- (6) **Control device** It serves as a measure of control for the management. If actual figures are compared with budgeted/projected figures, management can take remedial action, if there are any deviations.

15.5 Limitations of Funds Flow Statement

The following are the important limitations of Funds Flow Statement:

1. Funds Flow Statement is not a substitute of Income Statement or a Balance Sheet. It furnishes only some additional information as regards changes in the working capital.
2. This statement lacks originality. It is rearrangement of data appearing in account books.
3. It indicates only past changes. It can not reveal continuous changes.
4. Some management accountants are of the opinion that Funds Flow Statement is not an ideal tool for financial analysis.

15.6 Steps for Funds Flow Statement

The objective of funds flow statement is to analyse the causes for net increase or decrease in the working capital as shown by the schedule of working capital changes. This statement is prepared on the basis of changes in fixed assets, long-term liabilities and capital. Funds flow statement has two parts (i) Sources of funds and (ii) uses or application of funds. The difference between these two parts represents net changes in working capital. The amount of net increase or decrease as shown in funds flow statement should be equal to the amount shown by the schedule of working capital changes. The following steps should be taken to prepare funds flow statement:

I Step

From the current assets and current liabilities shown in the balance sheet, prepare a schedule of working capital changes. This will result in either an increase or decrease in net working capital.

- Increase in current assets increases working capital.
- Decrease in current assets decreases working capital.
- Increase in current liabilities decreases working capital.
- Decrease in current liabilities increases working capital.

II Step

Open respective accounts for all other non-current assets and non-current liabilities taking their opening and closing balances.

III Step

Journalise the adjustments using double entry system and post them in respective accounts.

IV Step

Close the accounts which will result either as an item of source of funds or an item of use or application of funds or close the remaining accounts by transferring to adjustment profit and loss accounts. The balance of adjusted profit and loss account will be profit or loss from operation, that is to be shown in funds flow statement following accounts are open for these calculations.

1. Funds From Operation The major source of working capital is the net profit from operations. The net profit from operations is the source of funds and net loss from operations is the use or application of funds. The net profit or loss disclosed by profit and loss account is not treated profit or loss from operations for the purpose of funds flow statement, because profit and loss account contains such items which do not effect working capital. So the appropriate adjustments are to be made in the profit disclosed by the profit and loss account to arrive at the fund from operation.

(a) Item to be added in Net Profit The non-funds items which do not affect current assets or current liabilities and non-trading expenses and losses are added in the profit to arrive at funds from operation. These are:

- Depreciation
- Loss on sale of fixed assets or long term investment.
- discount on issue of share and debentures.
- Premium on redemption of debentures.
- Prelimising expenses written off.
- Deferred revenue expenses.
- Goodwill written of.
- Patents; Trade marks written off.
- Provision for tax.
- Proposed dividend.
- Transfer to reserves.

(b) Items to be deducted from net profit

Items which do not affect current assets or current liabilities and non trading incomes and gains will be deducted from the net profit to arrive at fund from operations. These are:

- Profit or gain on sale of fixed assets.
- Dividend received or receivable (not being trading income).
- Interest received on investments. Compensation received.
- Refund of tax.
- Profit on revaluation of assets.

- Increase in value of goodwill and patents.
- Transfer from reserves to profit and loss account.
- **Calculation of Non-cash expenses and Non-trading losses.**

Information regarding non-cash expenses and non-trading losses is not generally explicitly provided. When the amount of intangible and factious assets are written off like goodwill preliminary expenses etc. are less in the current year's balance sheet than previous years balance sheet, then it is presumed that the deficiency is written off in the profit and loss account.

Sometime information regarding current year's depreciation is provided but sometimes it has to be calculated. If the amount of accumulated depreciation is given, than it is ascertained by preparing accumulated depreciation account. If the amount of accumulated depreciation is not given, then it should be calculated as follows:

		Rs.
Book value of fixed assets in last year's	B/S
Add: Fixed assets purchased during the year	
Less : Book value of fixed assets in current year's	B/S/
Current year's depreciation	

If the information regarding profit or loss on sale of fixed assets and long term investments is not given, then difference between sale proceeds and book value of the assets should be presumed as profit or loss.

- **Purchase/Sale of Fixed Assets**

The amount of source or use of funds from purchase or sale of fixed assets can be ascertained by opening an account for the concerned assets as it appears in the ledger. The opening balance of the assets is posted on the debit side and closing balance on the credit side of the assets account. Then the additional information is journalised by double entry system and the entry is posted in the concerned assets account. The balancin figure of the assets account may be either purchase or sale. If the balance falls short in the debit side, it represents purchase of the assets, on the contrary, if the balance falls short in the credit side, it is sale of the assets.

- **Purchase/Sale of Investment**

In a business concern, investment may be treated as current assets or as fixed assets. Investment in marketable securities or government securities representing temporary investment or short term investments are treated as current assets. Any change in the figures of such investments between the two balance sheet dates is automatically adjusted through the schedule of changes in working capital.

Investment in shares or debentures of other companies or subsidiary companies i.e. long term or trade investment are treated as fixed assets. Any sale of such investments is a source of funds while purchase represents use of funds.

- **Increase/Decrease in Share Capital and Long Term Liabilities**

Between the two balance sheet dates, increase in share capital or long term liabilities during the year arising on account of fresh issue of shares or debentures result in a source of funds. The redemption of preference shares or buy back of equity shares or debentures is an application or use of funds as it reduces the value of these instruments. If these share or debentures are issued at premium the account of premium is also treated an increase in share or debenture capital.

- **Provision for Taxation**

As a current liability - When the provision for taxation is treated as current liability, it is shown as the statement of changes in working capital and any tax paid by the firm during the year is ignored. The amount paid not shown is the fund flow statement and it will not be added back to the net profit for ascertaining funds from operations.

As an appropriation of Profits - When provision for taxation is treated as an appropriation of profits, the amount of tax paid will be shown as an application or use of funds in the funds flow statement. The amount of provision for taxation charged from the profit and loss account during the year is added back to the net profit for the year while calculating funds from operations.

Proposed Dividend - Proposed dividend prior to the approval of the annual financial statement in the annual general meeting represents only an appropriation of profits. When it is approved by the shareholders in the annual general meeting, it becomes a current liability for the company. According to the circumstances in each case, proposed dividend can be treated as provision for Taxation.

Interim Dividend - Dividend paid in advance against current year's profit is known as 'interim dividend'. The amount interim dividend paid during the year is shown as an application or use of funds in funds flow statement and in the debit side of adjusted profit and loss account or added back to net profit for calculating the funds from operation.

In the end, the balances of funds flow statement will be equal to the increase or decrease in net working capital as shown in the schedule of working capital changes.

15.7 Sources of Funds

Transactions that increase Working Capital are sources of funds. Some of them are:-

1. Funds from issue of Share Capital
2. Funds from issue of Debentures, Acceptance of Public Deposits, and other Long-term Loans.
3. Sale of Fixed Assets or Long-term Investments such as Land, Building, Machinery, Furniture, etc.
4. Non-trading income such as dividend, rent, interest, etc.
5. Fund from Operations.
6. Decrease in Working Capital.

Note- Share or Debentures issued and allotted for other than cash considerations, do not generate fund.

15.8 Application of Funds

1. Redemption of Equity & Preference Share Capital.
2. Redemption of Debentures.
3. Repayment of Long-Term Loans
4. Purchase of Fixed Assets or Long Term Investments.
5. Non-trading payment.
6. Funds lost in operations.

Note- If any fixed asset is purchased for a consideration of issue of shares or debentures, it does not involve any funds and hence it is not an application of funds.

Activity

Write any four items which can be treated as sources of funds.

Illustration 1

The balance sheets of Ram & Company as on 31st march 2008 and 2009 were as follows:

Liabilities	2008 Rs.	2009 Rs.	Assets	2008 Rs.	2009 Rs.
Creditors	37,400	42,000	Bank	4,000	5,000
P&L A/c	20,000	30,000	Debtors	36,000	39,000
9% debentures	-	20,000	Stock	22,000	26,000
General reserve	10,000	15,000	Fixed Assets	93,400	1,66,000
Equity share capital	90,000	1,30,000	Preliminary Expenses	2,000	1,000
	1,57,400	2,37,000		1,57,400	2,37,000

Additional Information

- (1) Depreciation written off against Fixed Assets was Rs. 23,400.
- (2) Dividend of Rs. 20,000 was paid on Share Capital.

Prepare Schedule of Changes in Working Capital and Fund Flow Statement.

Solution

Statement of Changes in Working Capital

Particulars	31 March 2008	31 March 2009	Changes in Working Capital	
			Increase	Decrease
	Rs.	Rs.	Rs.	Rs.
Current Assets:				
Bank	4,000	5,000	1,000	-
Debtors	36,000	39,000	3,000	-
Stock	22,000	26,000	4,000	-
Total (A)	62,000	70,000		
Current Liabilities:				
Creditors	37,400	42,000	-	4,600
Total (B)	37,400	42,000		
Net Working Capital (A-B)	24,600	28,000	8,000	4,600
Increase in Working Capital	3,400	-	-	3,400
	28,000	28,000	8,000	8,000

Funds Flow Statement

Sources of Funds	Amount Rs.	Uses of Funds	Amount Rs.
Issue of Share Capital	40,000	Dividend Paid	20,000
Issue of Debentures	20,000	Purchase of Fixed Assets	96,000
Funds from Operations	59,400	Increase in Working Capital	3,400
	1,19,400		1,19,400

Working Notes

Particulars	Rs.	Particulars	Rs.
To Balance b/d	93,400	By Depreciation	23,400
To Cash (Purchase of Fixed Assets)	96,000	By Balance c/d	1,66,000
	1,89,400		1,89,400

Dr.		Profit & Loss Adjustment A/c		Cr.	
Particulars	Rs.	Particulars	Rs.		
To Dividend	20,000	By Balance b/d	20,000		
To Depreciation	23,400	By Funds from Operations	59,400		
To Written off Preliminary Expenses	1,000				
To General Reserve	5,000				
To Balance c/d	30,000				
	79,400				79,400

Illustration 2

From the following balance sheets of X Ltd. on 31st march 2009 and 2010, you are required to prepare:

- A Statement of changes in Working capital;
- A Funds Flow Statement.

Liabilities	2009	2010	Assets	2009	2010
	Rs.	Rs.		Rs.	Rs.
Share Capital	1,00,000	1,00,000	Goodwill	12,000	12,000
General Reserve	14,000	18,000	Building	40,000	36,000
P&L A/c	16,000	13,000	Plant	37,000	36,000
Sundry Creditors	8,000	5,400	Investment	10,000	11,000
Bills Payable	1,200	800	Stock	30,000	23,400
Provision for Taxation	16,000	18,000	Bills Receivable	2,000	3,200
Provision for Doubtful debts	400	600	Debtors	18,000	19,000
			Cash at Bank	6,600	15,200
	1,55,600	1,55,800		1,55,600	1,55,800

The following additional information have also been given:

- Depreciation charged on Plant was Rs.4,000 and on Building Rs.4,000
- Provision for Taxation of Rs.19,000 was made during the year.
- Interim Dividend of Rs.8,000 was paid during the year.

Solution:

Funds Flow Statement

For the year ended 31st March, 2010

Sources	Rs.	Applications	Rs.
Funds from Operations	36,000	Purchase of Plant	3,000
		Purchase of Investment	1,000
		Payment of Interim Dividend	8,000
		Payment of Tax	17,000
		Increase in Working Capital	7,000
	36,000		36,000

Statement of Changes in Working Capital

Items	31 st March 2009 Rs.	31 st March 2010 Rs.	Increase Rs.	Decrease Rs.
(A)Current Assets:				
Debtors	18,000	19,000		
Less: Provision for Doubtful debts	400	600		
	17,600	18,400	800	-
	30,000	23,400	-	6,600
Stock	2,000	3,200	1,200	-
Bills Receivable	6,600	15,200	8,600	-
Cash at Bank				
Total(A)	56,200	60,200		
(B)Current Liabilities:				
Sundry Creditors	8,000	5,400	2,600	-
Bills Payable	1,200	800	400	-
Total (B)	9,200	6,200		
Net Working Capital(A-B)	47,000	54,000	13,600	6,600
Increase in W.C.	7,000	-	-	7,000
	54,000	54,000	13,600	13,600

Working Notes:

Dr.	Adjusted Profit & Loss A/c		Cr.
Particulars	Rs.	Particulars	Rs.
To General Reserve	4,000	By Balance b/d	16,000
To Provision for Taxation	19,000	By Funds from Operations	36,000
To Interim Dividend	8,000		
To Depreciation:			
Building	4,000		
Plant	4,000		
To Balance c/d	13,000		
	52,000		52,000

Dr.	Provision for Taxation A/c		Cr.
Particulars	Rs.	Particulars	Rs.
To Bank A/c	17,000	By Balance b/d	16,000
To Balance c/d	18,000	By Adjusted P&L A/c	19,000
	35,000		35,000

Dr.	Building A/c		Cr.
Particulars	Rs.	Particulars	Rs.
To Balance b/d	40,000	To Depreciation	4,000
		To Balance c/d	36,000
	40,000		40,000

Dr.	Plant A/c		Cr.
Particulars	Rs.	Particulars	Rs.
To Balance b/d	37,000	By Depreciation	4,000
To Bank A/c		By Balance c/d	36,000
<i>(Balancing Figure)</i>	3,000		
	40,000		40,000

15.9 Cash Flow Statement

Three major financial statements that are ordinarily required for external reports are an income statement, a balance sheet, and a statement of cash flows. The purpose of the statement of cash flow is to highlight the major activities that directly and indirectly impact cash flows and hence affect the overall cash balance. The manager focuses on cash for a very good reason. Without sufficient cash balance at the right time, a company may miss golden opportunities or may even fall into bankruptcy. The cash flow statement answers questions that cannot be answered by the income statement and a balance sheet.

The statement of cash flows is a valuable analytical tool for managers as well as for investors and creditors, although managers tend to be more concerned with forecasted statements of cash flows that are prepared as a part of the budgeting process. The statement of cash flows can be used to answer crucial questions such as the following:

1. Is the company generating sufficient positive cash flows from its ongoing operations to remain viable?
2. Will the company be able to repay its debts?
3. Will the company be able to pay its usual dividends?
4. Why is there a difference between net income and net cash flow for the year?
5. To what extent will the company have to borrow money in order to make needed investments?

For the statement of cash flows to be useful to managers and others, it is important that companies employ a common definition of cash. It is also important that a statement be constructed using consistent guidelines for identifying activities that are sources of cash and uses of cash. The proper definition of cash and the guidelines to use in identifying sources are discussed in coming paragraphs.

Definition of Cash:

In preparing a statement of cash flows, the term cash is broadly defined to include both cash and cash equivalents. Cash equivalents consist of short term, highly liquid investments such as treasury bills, commercial paper, and money market funds that are made solely for the purpose of generating a return on temporary idle funds. Instead of simply holding cash, most companies invest their excess cash reserves in these types of interest bearing assets that can be easily converted into cash. These short term liquid investments are usually included in marketable securities on the balance sheet. Since such assets are equivalent to cash, they are included with cash in preparing a statement of cash flows.

15.10 Uses of Cash Flow Statement

Its main advantages are as follows:

- (i) **Planning and Co-ordination of Financial Operations:** Cash Flow Statement is useful for evaluating Financial policies and current cash position. Since cash is the basis for carrying on

operations, the Cash Flow Statement prepared on an estimated basis for the next accounting period will enable the management to plan and co-ordinate the financial operations. It is especially useful in preparing cash budgets.

- (ii) **A Control Device** : Cash Flow statement is also a control device for the management. A comparison of cash flow statement of previous year with the budget for that year would indicate to what extent the resources of the enterprise were raised and applied according to the plan. Thus a comparison of original forecast with actual results may highlight trends of movement that might otherwise go undetected.
- (iii) **Useful to internal Financial Management** : Since it gives a clear picture of cash inflow from operations (and not income flow of operation), it is, therefore, very useful to internal financial management in considering the possibility of retiring long-term debts, in planning replacement of plant facilities or in formulating dividend policies.
- (iv) **Profit and Cash Positions**: It enables the management to account for situation when business has earned huge profits yet run without money or when it has suffered a loss and still has plenty of money at the bank.
- (v) **Short-term Financial Decisions** : Cash Flow Statement helps the management in taking short-term financial decisions. Suppose, a firm wants to know its state of solvency after one month, it is possible only from Cash Flow analysis and not from Funds Flow Statement. Shorter the period, greater is the importance of Cash Flow Statement.

15.11 Limitations of Cash Flow Statement

Cash flow statement suffers from the following limitations:

- (1) A Cash Flow Statement only reveals the inflow and outflow of cash. The cash balance disclosed by the cash flow statement may not represent the real liquid position of the concern.
- (2) Cash Flow Statement is not suitable for judging the profitability of a firm as non-cash changes are ignored while calculating cash flows from operating activities
- (3) Cash Flow Statement is based on cash accounting. It ignores the basic accounting concept of the accrual basis.

Cash Flow Statement does not give a complete picture of financial position of the concern.

15.12 Distinction between Funds Flow and Cash Flow Statements

A distinction between these two statements may be briefed as under:

- (i) Funds Flow Statement is concerned with all items constituting funds (Working Capital) for the business while Cash Flow Statement deals only with cash transactions. In other words, a transaction affecting working capital other than cash will affect Funds statement, and not the Cash Flow Statement.
- (ii) In Funds Flow Statement, net increase or decrease in working capital is recorded while in Cash Flow Statement, individual item involving cash is taken into account.
- (iii) Cash Flow Statement is started with the opening cash balance and closed with the closing cash balance while there are no opening or closing balances in Funds Flow Statement.

15.13 Distinction between Funds Flow Statement and Balance Sheet

A summary of main points of differences between these two is give below:

- (i) Balance sheet is a statement showing the financial position of the concern on a particular date. The asset side portrays the development of resources in various types of properties and liabilities side indicates the manner in which these resources are obtained. It shows all assets and liabilities whether current or fixed, tangible or intangible etc., while Funds Flow Statement shows the changes in current assets and current liabilities during a particular period of time.
- (ii) Balance Sheet shows the total financial position on a particular date and in this way, it is of a historical nature and therefore, its utility is very limited for the management. On the other hand, Funds Flow Statement is a comparative statement of assets and liabilities and depicts the changes in working capital during the period of two Balance sheets.
- (iii) Funds Flow Statement is an analysis and control device for the management. Management can ensure the long term and the short term solvency of the firm by studying the internal funds flow cycles. It is a modern technique of knowing the inflows and outflows of funds during a particular period. Balance Sheet represents the balance of various assets and liabilities and does not present analysis of any kind.
- (iv) There are two views of the financial position of the firm-long term and short-term. Short-term financial position means the technical solvency of the firm in the near future while on the other hand, long-term financial position means future financial structure of the firm. Both are inter-related but there is a differences in their analysis. The short-term view of the financial position of the firm cannot be obtained from the Balance Sheet.

15.14 Format of Cash Flow Statement

The cash flow statement is divided into three sections:

1. **Cash flow from Operating Activities:** Shows the results of cash inflows and outflows related to the fundamental operations of the basic line or lines of business in which the company engages. (Example: cash receipts from the sale of goods or services and cash outflows for purchasing inventory and paying rent and taxes).
2. **Cash flow from Investing Activities :** Associated with purchases and sales of non-current assets (Example: building and equipment purchases or sales of investments or subsidiaries).
3. **Cash flow from Financing Activities :** Associated with financing the firm (Example: selling and paying off bonds and issuing stock and paying dividends).

15.15 Methods of Cash Flow Statement

There are two methods of preparing the Cash Flow Statement. Both methods give the same results in respect of the final total as well as sub-totals of the three sections - operating, investing and financing. They differ only in the manner the information regarding cash flow from operating activities is presented.

(1) Indirect Method

**Format of Cash Flow Statement for the year ended.....
As per Accounting Standard - 3 (Revised)**

Particulars	Rs.	Rs.
(i) Cash flows from operating Activities		
Net Profit as per Profit and Loss A/c or difference between closing balance and opening balance of Profit and Loss A/c	xxx	xxx

Add : Transfer to reserve	xxx	
Proposed dividend for current year	xxx	
Interim dividend paid during the year	xxx	
Provision for tax made during the current year	xxx	
Extraordinary items, if any, debited to Profit and Loss A/c	xxx	xxx
Less: Extraordinary Items, if any, credited to Profit and Loss A/c	xxx	
Refund of Tax credited to Profit and Loss A/c	xxx	(xxx)
A. Net profit before taxation and Extra-Ordinary items (Adjustment for Non-Cash and Non-Operating Items)		Xxxx
B. Add :		
– Depreciation	xxx	
– Preliminary expenses	xxx	
– Discount on issue of shares and debentures written off	xxx	
– Interest on borrowings and debentures	xxx	
– Loss on sale of fixed assets	xxx	xxx
C. Less :		
– Interest income/received	xxx	
– Dividend income received	xxx	
– Rental income received	xxx	
– Profit on sale of fixed asset	xxx	xxx
D. Operating profits before working capital changes (A + B – C)		xxxx
E. Decrease in current assets and increase in current liabilities		xxx
F. Less: Increase in current assets and decrease in current liabilities		xxx
G. Cash generated from operations (D + E – F)		xxx
H. Less: Income tax paid (Net tax refund received)		xxx
I. Cash flow from before extraordinary items		xxx
Adjusted extraordinary items (+/-)		xxx
Net cash flow from operating activities		xxxx
(ii) Cash Flow from Investing Activities		
Add:		
– Proceeds from sale of fixed assets	xxx	
– Proceeds from sale of investments	xxx	
– Proceeds from sale of intangible assets	xxx	
– Interest and dividend received	xxx	xxx
Less:		
– Rent income	xxx	
– Purchase of fixed assets	xxx	
– Purchase of investment	xxx	
– Purchase of intangible assets like goodwill	xxx	(xxx)
Net cash from (or used in) investing activities		Xxxx
(iii) Cash Flow from Financing Activities		
Add:		
Proceeds from issue of shares and debentures	xxx	
Proceeds from other long term borrowings	xxx	xxx
Less:		
Final dividend fund	xxx	
Interim dividend fund	xxx	
Interest on debentures and loans paid	xxx	
Repayment of loans	xxx	
Redemption of debenture preference shares	xxx	(xxx)

Net cash flow from (or used in) financing activities		XXXX
(iv) Net increase/Decrease in cash and cash equivalent (i + ii + iii)		XXXX
(v) Add: Cash and Cash equivalents in the beginning of the year		
– Cash in hand	xxx	
– Cash at bank overdraft	xxx	
– Short term deposit	xxx	
– Marketable securities	xxx	XXXX
(vi) Less: Cash and Cash equivalents in the end of the year		
– Cash in hand	xxx	
– Cash at Bank (by bank overdraft)	xxx	
– Short term deposits	xxx	
– Cash flow from operation	xxx	(xxx)
		Nil

(2) Direct Method

Format for Cash flow Statement for the year ended... As per Accounting Standard-3 (Revised)

Particulars	Rs.	Rs.
(i) Cash Flow from Operating Activities		
A. Operating Cash Receipts		
– Cash sales	xxx	
– Cash received from customers	xxx	
– Trading commission received	xxx	
– Royalties received	xxx	xxx
B. Less: Operating cash payment		
– Cash purchase	xxx	
– Cash paid to the supplier	xxx	
– Cash paid for business expenses like office expenses, Manufacturing expenses, selling and distribution expenses	xxx	(xxx)
C. Cash generated from operation (A – B)		xxxx
D. Less: Income tax paid (Net of tax refund received)		(xxx)
E. Cash flow before extraordinary items		xxx
F. Adjusted extraordinary items (+/-)/Receipt/payment		xxx
G. Net Cash Flow from (or used in) Operating Activities		xxxx
(ii) Cash Flow from Investing Activities (calculation same as under indirect method)		xxxx
(iii) Cash Flow from Financing Activities (Calculation same as under indirect method)		xxxx
(iv) Net increase/decrease in cash and cash equivalents (i + ii + iii)		xxxx
(v) Add: cash and cash equivalent in the beginning of the year (calculated same as under indirect method)		xxx
(vi) Less: Cash and Cash equivalent in the end of the year		(xxx)
		Nil

Activity

What are the main headings while preparing cash flow statement by indirect method.

15.16 Preparation of Cash Flow Statement

15.16.1 Operating Activities

Cash flow from operating activities are primarily derived from the principal revenue generating activities of the enterprise. A few items of cash flows from operating activities are:

- (i) Cash receipt from the sale of goods and rendering services.
- (ii) Cash receipts from royalties, fee, Commissions and other revenue.
- (iii) Cash payments to suppliers for goods and services.
- (iv) Cash payment to employees
- (vi) Cash payment or refund of Income tax.

Determination of cash flow from operating activities:-

There are two stages for arriving at the Cash Flow from Operating Activities:-

Stage-I

Calculation of operating profit before working capital changes, it can be calculated in the following manner:-

Net profit before Tax and extra-ordinary Items		xxx
Add: Non-cash and non-operating Items (Which have already been debited to profit and Loss Account)		
- Depreciation	xxx	
- Amortization of intangible assets	xxx	
- Loss on the sale of Fixed assets	xxx	
- Loss on the sale of Long term Investments	xxx	
- Provision for tax	xxx	
- Dividend paid	xxx	xxx
		xxxx
Less: Non-cash and Non-operating Items (Which have already been credited to profit & loss Account)		
- Profit on sale of fixed assets	xxx	
- Profit on sale of Long term investment	xxx	(xxx)
Operating profit before working Capital changes		xxxx

Stage-II

After getting operating profit before working capital changes as per stage I, adjust increase or decrease in the current assets and current liabilities.

The following general rules may be applied at the time of adjusting current assets and current liabilities.

A. Current assets

- (i) An increase in an item of current assets causes a decrease in cash inflow because cash is blocked in current assets.
- (ii) A decrease in an item of current assets causes an increase in cash inflow because cash is released from the sale of current assets.

B. Current liabilities

- (i) An increase in an item of current liability causes a decrease in cash outflow because cash is saved.
- (ii) A decrease in an item of current liability causes increase in cash out flow because of payment of liability.

15.16.2 Investing Activities

Investing Activities refer to transactions that affect the purchase and sale of fixed or long term assets and investments.

Examples of cash flow arising from Investing activities are:-

1. Cash payments to acquire fixed Assets.
2. Cash receipts from disposal of fixed assets.
3. Cash payments to acquire shares, or debenture investment.
4. Cash receipts from the repayment of advances and loans made to third parties.

Thus, Cash Inflow from Investing activities is:-

- Cash sale of plant and machinery, land and Building, furniture, goodwill etc.
- Cash sale of investments made in the shares and debentures of other companies.
- Cash receipts from collecting the Principal amount of loans made to third parties.

Cash Outflow from Investing Activities is:

- Purchase of fixed assets i.e. land, building, furniture, machinery etc.
- Purchase of Intangible assets i.e. goodwill, trade mark etc.
- Purchase of shares and debentures
- Purchase of Government Bonds
- Loan made to third parties

15.16.3 Financing Activities

The third section of the cash flow statement reports the cash paid and received from activities with non-current or long term liabilities and shareholders Capital. Examples of cash flow arising from financing activities are:

- Cash proceeds from issue of shares or other similar instruments.
- Cash proceeds from issue of debentures, loans, notes, bonds, and other short-term borrowings.
- Cash repayment of amount borrowed.

Cash Inflow from financing activities is:

- Issue of Equity and preference share capital for cash only.
- Issue of Debentures, Bonds and long-term note for cash only

Cash Outflow from financing activities is:

- Payment of dividends to shareholders.
- Redemption or repayment of loans i.e. debentures and bonds.
- Redemption of preference share capital.
- Buy back of equity shares.

15.16.4 Treatment of Special Items

(i) **Payment of Interim Dividends** The following procedure is followed:

- The amount of interim dividend paid during the year is shown as outflow of cash in cash flow statement.
- It will be added back to the profits for the purpose of calculating cash provided from operating activities.
- No adjustment is necessary if the cash provided from operating activities is calculated on the basis of revised figure of net profit.

(ii) **Proposed dividend** The dividend is always declared in the general meeting after the preparation of Balance Sheet. It is therefore, a non-operating item which should not be permitted to affect the calculation of cash generated by operating activities. Thus, the amount of proposed dividends would be added back to current year's profit and payments made during the year in respect of dividends would be shown as an outflow of cash.

(iii) **Share Capital** The increase in share capital is regarded as inflow of cash only when there is a increase in share capital. For example, if a company issues 10000 equity shares of Rs.10 each for cash only, Rs. 100,000 would be shown as inflow of cash from financing activities. Similarly, the redemption of preference share is an outflow of cash. But where the share capital is issued to finance the purchase of fixed assets or the debentures are converted into equity shares there is no cash flow. Further, the issue of bonus shares does not cause any cash flows.

(iv) **Purchase or sale of fixed Assets** The figures appearing in the comparative balance sheets at two dates in respect of fixed assets might indicate whether a particular fixed asset has been purchased or sold during the year. This would enable to determine the inflows or outflows of cash. For example, If the plant and machinery appears at Rs 60,000 in the current year and Rs.50,000 in the previous year, the only conclusion, in the absence of any other information is that there is a purchase of fixed assets for Rs.10000 during the year. Hence, Rs.10000 would be shown as outflow of cash.

(v) **Provision for Taxation** It is a non-operating expense or an item of appropriation in the Income statement/Profit and Loss Account and therefore should not be allowed to reduce the cash provided from operating activities. Hence, if the profit is given after tax and the amount of the provision for tax made during the year is given, the same would be added back to the current year profit figure. In the cash flow statement, the tax paid would be recorded separately as an outflow of cash. The item of provision for taxation would not be treated as current assets.

Sometimes, the only information available about provision for taxation is two figures appearing in the opening balance sheet and closing balance sheet. In such a case the figure in the opening balance sheet is treated as an outflow of cash while the figure in the closing balance sheet is treated as a non-cash and non-operating expense and thus is added back to net Income figure to find out the cash provided from operating activities.

Illustration 3

From the summarized cash account of ABC Limited (Ltd.) prepare cash flow statement for the year ended 31st December 2006 in accordance with AS-3 (Revised) using the direct method and indirect method. The company does not have any cash equivalents:

Summarized Cash A/c

Particulars	Amount (Rs. 000)	Particulars	Amount (Rs. 000)
Balance on 1.1.2006	50	Payment to Suppliers	2000
Issue of equity shares	300	Purchase of fixed assets	200
Receipts from customers	2800	Overhead expenses	200
Sale of fixed assets	100	Wages and salaries	100
		Taxation	250
		Dividend	50
		Repayment of Bank Loan	300
		Balance on 31.12.2006	150
	3250		3250

Additional information: Net profit before tax for the year 2006 was Rs 5,00,000.

Solution:

**Cash Flow Statement of ABC Ltd
for the year ended 31st December 2006 (Indirect method)**

	Rs '000	Rs '000
A. Cash flow from operating activities		
Net profit before tax		500
Income tax paid		(250)
Net cash from operating activities		250
B. Cash flow from investing activities		
Purchase of fixed assets	(200)	
Sale of fixed assets	100	
Net cash used in investing activities		(100)
C. Cash flow from financing activities		
Issue of equity shares	300	
Repayment of bank loan	(300)	
Dividend paid	(50)	
Net cash used in financing activities		(50)
Net increase in cash (A+B+C)		100
Add: Cash at the beginning of the year		50
Cash at the end of the year		150

**Cash Flow Statement (Direct Method) of ABC Ltd.
for the year ended 31st December 2006**

	Rs '000	Rs '000
A. Cash flows from Operating Activities		
Cash receipts from customers	2800	
Cash payments to suppliers	(2000)	
Cash paid for wages and salaries	(100)	
Cash paid for overhead expenses	(200)	
Income tax paid	(250)	
Net cash from operating activities		250

B. Cash flows from Investing Activities		
Purchase of fixed assets for cash	(200)	
Proceeds from sale of fixed assets	100	
Net cash used in investing activities		(100)
C. Cash Flows from Financing Activities		
Proceeds from issue of equity shares	300	
Payment of bank loan	(300)	
Dividend paid	(50)	
Net cash used in financing activities		(50)
Net increase in cash (A+B+C) i.e. Net cash from activities		100
Cash at the beginning		50
Cash at the end		150

Illustration 4

From the following information, you are required to prepare the cash flow statement of Classic Ltd. for the year ended 31st March (both methods):

Balance Sheet as at 31st March 2006

Liabilities	2005	2006	Assets	2005	2006
	Rs.	Rs.		Rs.	Rs.
Share Capital	70,000	70,000	Fixed Assets	50,000	91,000
Secured Loans	-	40,000	Inventory	15,000	40,000
Creditors	14,000	39,000	Debtors	5,000	20,000
Tax payable	1,000	3,000	Cash	20,000	7,000
Profit & Loss A/c	7,000	10,000	Prepaid expenses	2,000	4,000
	92,000	162,000		92,000	162,000

Profit and Loss Account for the year ended 31st March 06

Dr.		Cr.	
Particulars	Amount	Particulars	Amount
	Rs.		Rs.
Opening Stock	15,000	Sales	100,000
Purchases	98,000	Closing Inventory	40,000
Gross profit c/d	27,000		
	1,40,000		1,40,000
General Expenses	11,000	Gross profit b/d	27,000
Depreciation	8,000		
Provision for tax	4,000		
Net Profit c/d	4,000		
	27,000		27,000
Dividend (interim)	1,000	balance b/d	7,000
balance c/d	10,000	Net profit b/d	4,000
	11,000		11,000

Solution:

**Cash Flow Statement (Direct Method)
for the year ended, March 31, 2006**

Particular	Amount	Amount
	Rs.	Rs.
(A) Cash Flow from Operating Activities		
Cash receipts from Debtors (see Debtors A/c)		85,000
Cash payment for :		
Cash paid to suppliers (see creditors A/c) (73,000)	(73,000)	
General expenses	(13,000)	(86,000)
Cash from operating activities		(1,000)
Taxes paid		(2000)
Net Cash outflow from operating activities		(3,000)
(B) Cash flow from Investing Activities		
Purchase of fixed Assets	(49,000)	
Net cash used in investing Activities		(49,000)
(C) Cash flow from Financing Activities		
Proceeds from Raising secured loans	40,000	
Dividend paid	(1,000)	
Net cash from Financing Activities		39,000
Net Decrease in cash (- 3000 - 49000 + 39000)		(13,000)
[A + B + C]		

Working Notes:

Dr.		Debtors A/c		Cr.	
Particulars	Amount	Particulars	Amount		
	Rs		Rs		
To Balance b/d (Bal. Fig.)	5,000	By Cash A/c (Received)	85,000		
To Sales A/c (Credit)	1,00,000	By Balance c/d	20,000		
	1,05,000		1,05,000		

Dr.		Creditors A/c		Cr.	
Particulars	Amount	Particulars	Amount		
	Rs		Rs		
To Cash A/c (Bal. Fig.)	73,000	By Balance b/d	14,000		
To Balance c/d	39,000	By Purchases A/c	98,000		
	1,12,000		1,12,000		

Dr.		Fixed Assets A/c		Cr.	
Particulars	Amount	Particulars	Amount		
	Rs		Rs		
To Balance b/d	50,000	By Depreciation	8,000		
To Purchase of fixed asset	49,000	By Balance c/d	91,000		
	99,000		99,000		

**Cash flow Statement (Indirect Method)
For the year ended March, 31, 2006**

Particulars	Rs.	Rs.
(A) Cash flow from Operating Activities :		
Net profit as per Profit and Loss A/c		4,000
Add : Provision for Tax (See provision for Tax Account)		4,000
Net profit be fore Tax		8,000
Add : Depreciation		8,000

Operating profit before working		
Capital Changes		16,000
Add : Decrease in Current Assets or Increase in Current liabilities		
Increase in Creditors	25000	
Less : Increase in current assets or Decrease in Current liabilities		
Increase in Debtors	(15000)	
Increase in Inventory	(25000)	
Increase in prepaid expenses	(2,000)	(17000)
Cash from Operating Activities		(1,000)
Taxes paid		(2,000)
Net cash from Operating Activities		(3,000)
(B) Cash flow from Investing Activities :		
Purchase of Fixed Assets (See fixed assets)	(49000)	
Net cash used in Investing Activities		(49000)
(C) Cash Flow from financing Activities		
Proceeds from Raising Secured loan	40000	
Dividend paid	(1000)	
Net Cash flow from Financing Activities		39000
Net Decrease in Cash a Cash equivalent		(13000)

Working Notes:

Dr.		1. Fixed Assets A/c		Cr.	
Particulars	Amount	Particulars	Amount		
	Rs.		Rs.		
To Balance b/d	50,000	By Depreciation A/c (Given)	8,000		
To Cash A/c (Purchases) (Bal. fig.)	49,000	By Balance C/d	91,000		
	99,000		99,000		

Dr.		2. Provision for Tax Account (Tax Payable A/c)		Cr.	
Particulars	Amount	Particulars	Amount		
	Rs		Rs		
To Cash A/c (Tax paid) (Bal Fig)	2,000	By Balance c/d	1,000		
To Balance c/d (Given) (Provision made during the year)	3,000	By Profit & loss A/c	4,000		
	5,000		5,000		

15.17 Summary

Funds flow statement is an analytical tool in the hands of financial manager. The basic purpose of this statement is to indicate on historical basis the changes in the working capital i.e. where funds came from and where they are used during a given period.

Cash flow statement is a statement of sources and use of cash and cash equivalents in an enterprise during a specified period of time. A cash flow statement, summarises the causes of changes in cash position of a business enterprise between dates of two balance sheets.

15.18 Key Words

- **Net Working Capital** Net working capital means difference between current assets and current liabilities.
- **Flow of Funds** Flow of funds refers to increase or decrease in net working capital.
- **Cash Flow** Inflows and outflows of cash and cash equivalents.

- **Cash Equivalents** Cash equivalents are short term highly liquid investments that are readily convertible into cash and their maturity so near that they present insignificant risk of changes in value and interest rates.

15.19 Self Assessment Test

1. Explain the meaning of funds flow statement. What are its main objectives?
2. What are the various sources and uses of funds?
3. The following are the summarised Balance Sheets of Pratiksha Limited as on 31st December, 2004 and 31st December, 2005 respectively :

Assets	(Rs. in Thousands)	
	2004	2003
Freehold Property at cost	33.00	24.00
Plant and Machinery (cost less Dep.)	20.80	60.30
Inventories	30.35	32.85
Sundry Debtors	20.10	24.75
Cash and Bank	9.25	16.80
Preliminary Expenses	1.20	0.60
	114.70	159.30
Liabilities		
Issued Share Capital	60.00	75.00
Share Premium Account	-	5.00
Capital Reserve	-	17.00
Profit and Loss Account	21.50	21.20
Sundry Creditors	27.20	32.60
Proposed Dividend	6.00	8.50
	114.70	159.30

No Plant and Machinery was sold during 2005. Depreciation written off during 2005 was Rs. 7,500. Net profit for the year was Rs. 8,200. Rs 6,000 dividend was paid during 2005 in respect of previous year. Capital Reserve represents profit on sale of freehold premises.

Answer : Increase in working capital Rs. 9,300 ; Funds from Operations Rs. 16,300; Total of Funds Flow Statement Rs. 62,300; Sale of Freehold Property Rs. 26,300. Purchase of plant and Machinery Rs. 47.00]

4. What is a cash Flow Statement? How does it differ from the Funds Flow Statement?
5. Following are the comparative Balance Sheets of Asian Paints Limited as on 31st December, 2004 and 31st December 2005 :

Liabilities	2004	2005	Assets	2004	2005
	Rs.	Rs.		Rs.	Rs.
Equity Share Capital	2,00,000	2,00,000	Land	10,000	10,000
Profit and Loss A/c. (Cr.)	23,500	52,000	Building (at cost)	75,000	90,000
Debentures	40,000	35,000	Machinery (at cost)	25,000	40,000
Outstanding Expenses	3,500	4,500	Investments (Long-tem)	50,000	30,000
Creditors	33,000	40,000	Stock	32,000	40,000
Accumulated Depreciation			Debtors	80,000	90,000
Machinery	3,000	7,500	Prepaid Expenses	2,000	2,000
Building	12,000	18,000	Cash	43,000	58,000
Prov. for Doubtful Debts	2,000	3,000			
	3,17,000	3,60,000		3,17,000	3,60,000

Additional Information

- (i) Dividend paid during 2005 was Rs. 26,500.
- (ii) Investments Costing Rs. 20,000 were sold in 2005 for Rs. 25,000.
- (iii) Machinery costing Rs. 5,000 on which Rs. 1,000 depreciation was accumulated, was sold for Rs. 6,000 in the year 2005.
- (iv) The provision for doubtful debts charged to profit was Rs. 1,500.

Prepare a Cash Flow Statement for the year 2005.

[Answer : Cash from Operating Activities Rs. 50,500; Investing Activities Rs. (4,000); Financing Activities Rs. (31,500)]

6. The following are the balance sheets of Swaraj Ltd. for the year ended 31st March, 2005 and 2006. Prepare a Cash Flow Statement for the year 2005-06.

Balance Sheet

Liabilities	31.3.05 Rs.	31.3.06 Rs.	Assets	31.3.05 Rs.	31.3.06 Rs.
Share Capital	1,00,000	2,00,000	Goodwill	15,000	10,000
General Reserve	63,250	68,250	Plant	1,50,000	2,40,000
Depreciation Fund	50,000	55,000	Land & Buildings	20,000	40,000
Debentures	50,000	-	Debtors	75,000	80,000
Sundry Creditors	1,22,750	1,14,850	Stock	1,08,000	60,000
Accrued Expenses	9,000	18,000	Bank Balance	29,000	28,000
Provision for Tax	5,000	5,400	Prepaid	3,000	3,500
			Insurance		
	4,00,000	4,61,500		4,00,000	4,61,500

Additional Information:

1. Sales for the year 2005-06 amounted to Rs. 10,50,000. In arriving at the Net Profit, items deducted from the sales includes among others : Cost of goods sold Rs. 8,25,000; Depreciation on Plant Rs. 25,000; Wages and salaries Rs. 1,00,000; and a profit of Rs. 5,000 on sale of a plant. The machinery was sold for Rs. 15,000 and had a cost of Rs. 30,000 (accumulated depreciation Rs. 20,000).
2. The Company declared and paid dividends of Rs. 30,000.
3. Debentures were redeemed for Rs. 49,000.

[Answer : Cash from Operating Activities Rs. 1,03,000; Investment Activities Rs. (1,25,000); Financing Activities Rs. 21,000]

15.20 Reference Books

Maheshwari S.L., *Management Accounting*.

Maheshwari Mittal, *Management Accounting*.

Agarwal and Agarwal, *Management Accounting*.