

MASTER OF BUSINESS ADMINISTRATION

MBA-104

ACCOUNTING FOR MANAGERS



**Directorate of Distance Education
Guru Jambheshwar University of
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Subject: Accounting for Managers	
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FINANCIAL ACCOUNTING: SCOPE AND IMPORTANCE

STRUCTURE

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- 1.3 Meaning of Accounting
- 1.4 Distinction between Book-Keeping and Accounting
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1.18 References/Suggested Readings

1.0 LEARNING OBJECTIVES

After reading this lesson, you should be able to:

- Define accounting and trace the origin and growth of accounting.
- Distinguish between book-keeping and accounting.
- Explain the nature and objectives of accounting.
- Discuss the branches, role and limitations of accounting.

1.1 INTRODUCTION

Accounting has rightly been termed as the language of the 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 operations to various parties who have some stake in the business viz., the proprietor, creditors, investors, Government and other agencies. Though accounting is generally associated with business but it is not only business which makes use of accounting. Persons like housewives, Government and other individuals also make use of accounting. For example, a housewife has to keep a record of the money received and spent by her during a particular period. She can record her receipts of money on one page of her "household diary" while payments for different items such as milk, food, clothing, house, education etc. on some other page or pages of her diary in a chronological order. Such a record will help her in knowing about:

1. The sources from which she received cash and the purposes for which it was utilised.
2. Whether her receipts are more than her payments or vice-versa?
3. The balance of cash in hand or deficit, if any at the end of a period.

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 (say a year) on different items say milk, food, education, entertainment, etc. Similarly she can find the sources of her receipts such as salary of her husband, rent from property, cash gifts from her relatives, etc. Thus, at the end of a period (say a year) she can see for herself



about her financial position i.e., what she owns and what she owes. 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 great for a person who is running a business. He must know:

- (i) What he owns?
- (ii) What 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.

1.2 ORIGIN AND GROWTH OF ACCOUNTING

Accounting is as old as money itself. However, the act of accounting was not as developed as it is today because in the early stages of civilisation, the number of transactions to be recorded were so small that each businessman was able to record and check for himself all his transactions. Accounting was practised in India twenty three centuries ago as is clear from the book named "Arthashastra" written by Kautilya, King Chandragupta's minister. This book not only relates to politics and economics, but also explains the art of proper keeping of accounts. However, the modern system of accounting based on the principles of double entry system owes its origin to Luca Pacioli who first published the principles of Double Entry System in 1494 at Venice in Italy. Thus, the art of accounting has been practised for centuries but it is only in the late thirties that the study of the subject 'accounting' has been taken up seriously.

1.3 MEANING OF ACCOUNTING

The main purpose of accounting is to ascertain profit or loss during a specified period, to show financial condition of the business on a particular date and to have control over the firm's property. Such accounting records are required to be maintained to measure the income of the business and communicate the information so that it may be used by managers, owners and other interested parties. Accounting is a discipline which records, classifies, summarises and interprets financial information about the activities of a concern so that intelligent decisions can be made about the concern. *The American Institute of Certified Public Accountants* has defined the Financial



Accounting as "the art of recording, classifying and summarising in as significant manner and in terms of money transactions and events which in part, at least of a financial character, and interpreting the results thereof". *American Accounting Association* defines accounting as "the process of identifying, measuring, and communicating economic information to permit informed judgements and decisions by users of the information.

From the above the following attributes of accounting emerge:

- (i) **Recording** : It is concerned with the recording of financial transactions in an orderly manner, soon after their occurrence in the proper books of accounts.
- (ii) **Classifying** : It is concerned with the systematic analysis of the recorded data so as to accumulate the transactions of similar type at one place. This function is performed by maintaining the ledger in which different accounts are opened to which related transactions are posted.
- (iii) **Summarising** : It is concerned with the preparation and presentation of the classified data in a manner useful to the users. This function involves the preparation of financial statements such as Income Statement, Balance Sheet, Statement of Changes in Financial Position, Statement of Cash Flow, Statement of Value Added.
- (iv) **Interpreting** : Nowadays, the aforesaid three functions are performed by electronic data processing devices and the accountant has to concentrate mainly on the interpretation aspects of accounting. The accountants should interpret the statements in a manner useful to action. The accountant should explain not only what has happened but also (a) why it happened, and (b) what is likely to happen under specified conditions.

1.4 DISTINCTION BETWEEN BOOK KEEPING AND ACCOUNTING

Book-keeping is a part of accounting and is concerned with the recording of transactions which is often routine and clerical in nature, whereas accounting performs other functions as well, viz., measurement and communication, besides recording. An accountant is required to have a much higher level of knowledge, conceptual understanding and analytical skill than is required of the book-keeper.



An accountant designs the accounting system, supervises and checks the work of the book-keeper, prepares the reports based on the recorded data and interprets the reports. Nowadays, he is required to take part in matters of management, control and planning of economic resources.

1.5 DISTINCTION BETWEEN ACCOUNTING AND ACCOUNTANCY

Although in practice Accountancy and Accounting are used interchangeably yet there is a thin line of demarcation between them. The word Accountancy is used for the profession of accountants - who do the work of accounting and are knowledgeable persons. Accounting is concerned with recording all business transactions systematically and then arranging in the form of various accounts and financial statements. And it is a distinct discipline like economics, physics, astronomy etc. The word accounting tries to explain the nature of the work of the accountants (professionals) and the word Accountancy refers to the profession these people adopt.

1.6 NATURE OF ACCOUNTING

The various definitions and explanations of accounting has been propounded by different accounting experts from time to time and the following aspects comprise the nature of accounting:

- (i) Accounting as a service activity:** Accounting is a service activity. Its function is to provide quantitative information, primarily financial in nature, about economic entities that is intended to be useful in making economic decisions, in making reasoned choices among alternative courses of action. It means that accounting collects financial information for the various users for taking decisions and tackling business issues. Accounting in itself cannot create wealth though, if it produces information which is useful to others, it may assist in wealth creation and maintenance.
- (ii) Accounting as a profession:** Accounting is very much a profession. A profession is a career that involve the acquiring of a specialised formal education before rendering any service. Accounting is a systematized body of knowledge developed with the development of trade and business over the past century. The accounting education is being imparted to the examinees by national and international recognised the bodies like The Institute of Chartered Accountants of India (ICAI), New Delhi in India and American Institute of Certified Public Accountants (AICPA) in USA etc. The candidate must pass a vigorous examination in



Accounting Theory, Accounting Practice, Auditing and Business Law. The members of the professional bodies usually have their own associations or organisations, where in they are required to be enrolled compulsorily as Associate member of the Institute of Chartered Accountants (A.C.A.) and fellow of the Institute of Chartered Accountants (F.C.A.). In a way, accountancy as a profession has attained the stature comparable with that of lawyer, medicine or architecture.

- (iii) Accounting as a social force:** In early days, accounting was only to serve the interest of the owners. Under the changing business environment the discipline of accounting and the accountant both have to watch and protect the interests of other people who are directly or indirectly linked with the operation of modern business. The society is composed of people as customer, shareholders, creditors and investors. The accounting information/data is to be used to solve the problems of the public at large such as determination and controlling of prices. Therefore, safeguarding of public interest can better be facilitated with the help of proper, adequate and reliable accounting information and as a result of it the society at large is benefited.
- (iv) Accounting as a language:** Accounting is rightly referred the "language of business". It is one means of reporting and communicating information about a business. As one has to learn a new language to converse and communicate, so also accounting is to be learned and practised to communicate business events. A language and accounting have common features as regards rules and symbols. Both are based and propounded on fundamental rules and symbols. In language these are known as grammatical rules and in accounting, these are termed as accounting rules. The expression, exhibition and presentation of accounting data such as a numerals and words and debits and credit are accepted as symbols which are unique to the discipline of accounting.
- (v) Accounting as Science or Art:** Science is a systematised body of knowledge. It establishes a relationship of cause and effect in the various related phenomenon. It is also based on some fundamental principles. Accounting has its own principles e.g. the double entry system, which explains that every transaction has two fold aspect i.e. debit and credit. It also lays down rules of journalising. So we can say that accounting is a science. Art requires a perfect knowledge, interest and experience to do a work efficiently. Art also teaches us how to do a work in the



best possible way by making the best use of the available resources. Accounting is an art as it also requires knowledge, interest and experience to maintain the books of accounts in a systematic manner. Everybody cannot become a good accountant. It can be concluded from the above discussion that accounting is an art as well as a science.

(vi) Accounting as an information system: Accounting discipline will be the most useful one in the acquisition of all the business knowledge in the near future. You will realise that people will be constantly exposed to accounting information in their everyday life. Accounting information serves both profit-seeking business and non-profit organisations. The accounting system of a profit-seeking organisation is an information system designed to provide relevant financial information on the resources of a business and the effect of their use. Information is relevant and valuable if the decision makers can use it to evaluate the financial consequences of various alternatives. Accounting generally does not generate the basic information (raw financial data), rather the raw financial data result from the day to day transactions of the business. As an information system, accounting links an information source or transmitter (generally the accountant), a channel of communication (generally the financial statements) and a set of receivers (external users).

1.7 OBJECTIVE OF ACCOUNTING:

The following are the main objectives of accounting:

- 1. To Keep Systematic Record:** 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 supplying the following information to the manager or the proprietor:
 - The amount of the proprietor's funds invested in the business.
 - How much the business have to pay to others?
 - How much the business has to recover from others?
 - 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 necessarily kept idle or underutilised.

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 expense 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 profit. In case the expenditure exceeds the revenue, there is said to be a loss. Profit and Loss Account will help the management, investors, creditors, etc. in knowing whether 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 the business:** The Profit and Loss Account gives the amount of profit or loss made by the business during a particular period. However, it is not enough. The businessman must know about his financial position i.e. where he stands ?, what he owes and what he owns? This objective is served by the 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 judgements 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.
6. **Information System:** Accounting functions as an information system for collecting and communicating economic information about the business enterprise. This information helps



the management in taking appropriate decisions. This function, as stated, is gaining tremendous importance these days.

1.8 USERS OF ACCOUNTING INFORMATION

The basic objective of accounting is to provide information which is useful for persons inside the organisation and for persons or groups outside the organisation. Accounting is the discipline that provides information on which external and internal users of the information may base decisions that result in the allocation of economic resources in society.

External Users of Accounting Information: External users are those groups or persons who are outside the organisation for whom accounting function is performed. Following can be the various external users of accounting information:

- 1 **Investors:** Those who are interested in investing money in an organisation are interested in knowing the financial health of the organisation or know how safe the investment already made is and how safe their proposed investment will be. To know the financial health, they need accounting information which will help them in evaluating the past performance and future prospects of the organisation. Thus, investors for their investment decisions are dependent upon accounting information included in the financial statements. They can know the profitability and the financial position of the organisation in which they are interested to make that investment by making a study of the accounting information given in the financial statements of the organisation.
- 2 **Creditors:** Creditors (i.e. supplier of goods and services on credit, bankers and other lenders of money) want to know the financial position of a concern before giving loans or granting credit. They want to be sure that the concern will not experience difficulty in making their payment in time i.e. liquid position of the concern is satisfactory. To know the liquid position, they need accounting information relating to current assets, quick assets and current liabilities which is available in the financial statements.
- 3 **Members of Non-profit Organisations:** Members of non-profit organisations such as schools, colleges, hospitals, clubs, charitable institutions etc. need accounting information to know how their contributed funds are being utilised and to ascertain if the organisation deserves continued support or support should be withdrawn keeping in view the bad performance depicted by the



accounting information and diverted to another organisation. In knowing the performance of such organisations, criterion will not be the profit made but the main criterion will be the service provided to the society.

- 4 Government:** Central and State Governments are interested in the accounting information because they want to know earnings or sales for a particular period for purposes of taxation. Income tax returns are examples of financial reports which are prepared with information taken directly from accounting records. Governments also need accounting information for compiling statistics concerning business which, in turn helps in compiling national accounts.
- 5 Consumers:** Consumers need accounting information for establishing good accounting control so that cost of production may be reduced with the resultant reduction of the prices of goods they buy. Sometimes, prices for some goods are fixed by the Government, so it needs accounting information to fix reasonable prices so that consumers and manufacturers are not exploited. Prices are fixed keeping in view fair return to manufacturers on their investments shown in the accounting records.
- 6 Research Scholars:** Accounting information, being a mirror of the financial performance of a business organisation, is of immense value to the research scholars who want to make a study into the financial operations of a particular firm. To make a study into the financial operations of a particular firm, the research scholar needs detailed accounting information relating to purchases, sales, expenses, cost of materials used, current assets, current liabilities, fixed assets, long term liabilities and shareholders' funds which is available in the accounting records maintained by the firm.

Internal Users of Accounting Information. Internal users of accounting information are those persons or groups which are within the organisation. Following are such internal users:

- 1) Owners:** The owners provide funds for the operations of a business and they want to know whether their funds are being properly used or not. They need accounting information to know the profitability and the financial position of the concern in which they have invested their funds. The financial statements prepared from time to time from accounting records depict to them the profitability and the financial position.



- 2) **Management:** Management is the art of getting work done through others, the management should ensure that the subordinates are doing work properly. Accounting information is an aid in this respect because it helps a manager in appraising the performance of the subordinates. Actual performance of the employees can be compared with the budgeted performance they were expected to achieve and remedial action can be taken if the actual performance is not upto the mark. Thus, accounting information provides "the eyes and ears to management". The most important functions of management are planning and controlling. Preparation of various budgets, such as sales budget, production budget, cash budget, capital expenditure budget etc., is an important part of planning function and the starting point for the preparation of the budgets is the accounting information for the previous year. Controlling is the function of seeing that programmes laid down in various budgets are being actually achieved i.e. actual performance ascertained from accounting is compared with the budgeted performance, enabling the manager to exercise controlling case of weak performance. Accounting information is also helpful to the management in fixing reasonable selling prices. In a competitive economy, a price should be based on cost plus a reasonable rate of return. If a firm quotes a price which exceeds cost plus a reasonable rate of return, it probably will not get the order. On the other hand, if the firm quotes a price which is less than its cost, it will be given the order but will incur a loss on account of price being lower than the cost. So, selling prices should always be fixed on the basis of accounting data to get the reasonable margin of profit on sales.
- 3) **Employees:** Employees are interested in the financial position of a concern they serve particularly when payment of bonus depends upon the size of the profits earned. They seek accounting information to know that the bonus being paid to them is correct.

1.9 BRANCHES OF ACCOUNTING

To meet the ever increasing demands made on accounting by different interested parties such as owners, management, creditors, taxation authorities etc., the various branches have come into existence. There are as follows:



- **Financial accounting:** The object of financial accounting is to ascertain the results (profit or loss) of business operations during the particular period and to state the financial position (balance sheet) as on a date at the end of the period.
- **Cost accounting:** The object of cost accounting is to find out the cost of goods produced or services rendered by a business. It also helps the business in controlling the costs by indicating avoidable losses and wastes.
- **Management accounting:** The object of management accounting is to supply relevant information at appropriate time to the management to enable it to take decisions and effect control.

In this lesson we are concerned only with financial accounting. Financial accounting is the oldest and other branches have developed from it. The objects of financial accounting, as stated above, can be achieved only by recording the financial transactions in a systematic manner according to a set of principles. The art of recording financial transactions and events in a systematic manner in the books of account is known as book-keeping. However, mere record of transactions is not enough. The recorded information has to be classified, analysed and presented in a manner in which business results and financial position can be ascertained.

1.10 ROLE OF ACCOUNTING

Accounting plays an important and useful role by developing the information for providing answers to many questions faced by the users of accounting information:

1. How good or bad is the financial condition of the business?
2. Has the business activity resulted in a profit or loss ?
3. How well the different departments of the business have performed in the past?
4. Which activities or products have been profitable?
5. Out of the existing products which should be discontinued and the production of which commodities should be increased?
6. Whether to buy a component from the market or to manufacture the same?
7. Whether the cost of production is reasonable or excessive?



8. What has been the impact of existing policies on the profitability of the business?
9. What are the likely results of new policy decisions on future earning capacity of the business?
10. In the light of past performance of the business how should it plan for future to ensure desired results?

Above mentioned are few examples of the types of questions faced by the users of accounting information. These can be satisfactorily answered with the help of suitable and necessary information provided by accounting.

Besides, accounting is also useful in the following respects:

- a) Increased volume of business results in large number of transactions and no businessman can remember everything. Accounting records obviate the necessity of remembering various transactions.
- b) Accounting records, prepared on the basis of uniform practices, will enable a business to compare results of one period with another period.
- c) Taxation authorities (both income tax and sales tax) are likely to believe the facts contained in the set of accounting books if maintained according to generally accepted accounting principles.
- d) Accounting records, backed up by proper and authenticated vouchers, are good evidence in a court of law.
- e) If a business is to be sold as a going concern, then the values of different assets as shown by the balance sheet helps in bargaining proper price for the business.

1.11 LIMITATIONS OF FINANCIAL ACCOUNTING

Advantages of accounting discussed in this lesson do not suggest that accounting is free from limitations. Anyone who is using accounting information should be well aware of its limitations also. Following are the limitations:

- (a) Financial accounting permits alternative treatments:** No doubt accounting is based on concepts and it follows "generally accepted accounting principles", but there exist more than one principle for the treatment of any one item. This permits alternative treatments within the



framework of generally accepted accounting principles. For example, the closing stock of a business may be valued by any one of the following methods : FIFO (First-in-first-out); LIFO (Last-in-first-out); Average price, Standard price etc., Application of different methods will give different results but the methods are generally accepted. So, the results are not comparable.

- (b) Financial accounting is Influenced by personal judgements:** Inspite of the fact that convention of objectivity is respected in accounting but to record certain events estimates have to be made which requires personal judgement. It is very difficult to expect accuracy in future estimates and objectivity suffers. For example, in order to determine the amount of depreciation to be charged every year for the use of fixed asset it is required to estimate (a) future life of the asset, and (b) scrap value of the asset. Thus in accounting we do not determine but measure the income. In other words, the income disclosed by accounting is not authoritative but approximation.
- (c) Financial accounting ignores important non-monetary information:** Financial accounting takes into consideration only those transactions and events which can be described in money. The transactions and events, however important, if non-monetary in nature are ignored i.e., not recorded. For example, extent of competition faced by the business, technical innovations possessed by the business, loyalty and efficiency of the employees etc. are the important matters in which management of the business is highly interested but accounting is not tailored to take note of such matters. Thus any user of financial information is, naturally, deprived of vital information which is of non-monetary character.
- (d) Financial accounting does not provide timely information:** Financial accounting is designed to supply information in the form of statements (Balance Sheet and Profit and Loss Account) for a period, normally, one year. So the information is, at best, of historical interest and only postmortem analysis of the past can be conducted. The business requires timely information at frequent intervals to enable the management to plan and take corrective action. For example, if a business has budgeted that during the current year sales should be Rs. 12,00,000 then it requires information – whether the sales in the first month of the year



amounted to Rs. 1,00,000 or less or more? Traditionally, financial accounting is not supposed to supply information at shorter intervals than one year.

- (e) **Financial accounting does not provide detailed analysis:** The information supplied by the financial accounting is in reality aggregate of the financial transactions during the course of the year. Of course, it enables to study the overall results of the business activity during the accounting period. For proper running of the business the information is required regarding the cost, revenue and profit of each product but financial accounting does not provide such detailed information product-wise. For example, if a business has earned a total profit of, say, Rs. 5,00,000 during the accounting year and it sells three products namely petrol, diesel and mobile oil and wants to know profit earned by each product. Financial accounting is not likely to help him.
- (f) **Financial accounting does not disclose the present value of the business:** In financial accounting the position of the business as on a particular date is shown by a statement known as balance sheet. In balance sheet the assets are shown on the basis of going concern concept. Thus it is presumed that business has relatively longer life and will continue to exist indefinitely, hence the asset values are going concern values. The realised value of each asset if sold today can't be known by studying the balance sheet.

1.12 SYSTEMS OF ACCOUNTING

The following are the main systems of recording business transactions:

- a) **Cash System:** Under this system, actual cash receipts and actual cash payments are recorded. Credit transactions are not recorded at all until the cash is actually received or paid. The Receipts and Payments Account prepared in case of non-trading concerns such as a charitable institution, a club, a school, a college, etc. and professional men like a lawyer, a doctor, a chartered accountant etc. can be cited as the best example of cash system. This system does not make a complete record of financial transactions of a trading period as it does not record outstanding transactions like outstanding expenses and outstanding incomes. The system being based on a record of actual cash receipts and actual cash payments will not be able to



disclose correct profit or loss for a particular period and will not exhibit true financial position of the business on a particular day.

- b) *Mercantile (Accrual) system:*** Under this system all transactions relating to a period are recorded in the books of account i.e., in addition to actual receipts and payments of cash income receivable and expenses payable are also recorded. This system gives a complete picture of the financial transactions of the business as it makes a record of all transactions relating to a period. The system being based on a complete record of the financial transactions discloses correct profit or loss for a particular period and also exhibits true financial position of the business on a particular day.

1.13 CHECK YOUR PROGRESS

Fill In the Blanks:

1. was practised in India twenty three centuries ago as is clear from the book named "Arthashastra" written by Kautilya, King Chandragupta's minister.
2. who first published the principles of Double Entry System in 1494 at Venice in Italy.
3. defines accounting as "the process of identifying, measuring, and communicating economic information to permit informed judgements and decisions by users of the information.
4. Under system, actual cash receipts and actual cash payments are recorded. Credit transactions are not recorded at all until the cash is actually received or paid.
5. system gives a complete picture of the financial transactions of the business as it makes a record of all transactions relating to a period.

1.14 SUMMARY

Accounting can be understood as the language of financial decisions. It is an ongoing process of performance measurement and reporting the results to decision makers. The discipline of accounting can be traced back to very early times of human civilization. With the advancement of industry, modern day accounting has become formalized and structured. A person who maintains accounts is known as the accountant. The information generated by accounting is used by various



interested groups like, individuals, managers, investors, creditors, government, regulatory agencies, taxation authorities, employee, trade unions, consumers and general public. Depending upon purpose and method, accounting can be broadly three types; financial accounting, cost accounting and management accounting. Financial accounting is primarily concerned with the preparation of financial statements. It is used on certain well-defined concepts and conventions and helps in framing broad financial policies. However, it suffers from certain limitations.

1.15 KEYWORDS

Book-keeping: It is the art of recording in the books of accounts the monetary aspect of commercial or financial transactions.

Accounting: It is the means of collecting, summarising and reporting in monetary terms, information about the business.

Financial accounting: Financial accounting deals with the maintenance of books of accounts with a view to ascertain the profitability and the financial status of the business.

Transaction: A transaction is a stimulus from one person and a related response from the another.

1.16 SELF-ASSESSMENT TEST

1. Define accounting. Discuss the objectives of accounting.
2. What are the various interested parties which use accounting information?
3. What is meant by book-keeping and accounting? Is accounting a science or art?
4. Briefly describe the various branches of accounting.
5. Distinguish between:
 - a) Accounting and Accountancy
 - b) Cash and Mercantile System of Accounting

1.17 ANSWER TO CHECK YOUR PROGRESS

Answer to Fill In the Blanks:



1. **Accounting** was practised in India twenty three centuries ago as is clear from the book named "Arthashastra" written by Kautilya, King Chandragupta's minister.
2. **Luco Pacioli** who first published the principles of Double Entry System in 1494 at Venice in Italy.
3. **American Accounting Association (AAA)** defines accounting as "the process of identifying, measuring, and communicating economic information to permit informed judgements and decisions by users of the information.
4. Under **Cash** system, actual cash receipts and actual cash payments are recorded. Credit transactions are not recorded at all until the cash is actually received or paid.
5. **Mercantile or Accrual** system gives a complete picture of the financial transactions of the business as it makes a record of all transactions relating to a period.

1.18 REFERENCES/SUGGESTED READINGS

1. S.N. Maheshwari, Advanced Accountancy
2. R.L. Gupta, Advanced Accountancy
3. M.C. Sukhla and T.S. Grewal, Advanced Account



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ACCOUNTING CONCEPTS AND CONVENTIONS

STRUCTURE

2.0 Learning Objectives

2.1 Introduction

2.2 Meaning and Features of Accounting Principles

2.3 Accounting Principles

2.4 Accounting Concepts

2.5 Accounting Conventions

2.6 Accounting Standards

2.7 Check Your Progress

2.8 Summary

2.9 Keywords

2.10 Self-Assessment Test

2.11 Answer to Check Your Progress

2.12 References/Suggested Readings

2.0 LEARNING OBJECTIVES

After studying this lesson, you should be able:

- To know the need for a conceptual frame work of accounting;
- To understand and describe the generally accepted accounting principles (GAAP); and



- To appreciate the importance and advantages of uniformity in accounting policies and practices.

2.1 INTRODUCTION

Accounting is often called the language of business because the purpose of accounting is to communicate or report the results of business operations and its various aspects to various users of accounting information. In fact, today, accounting statements or reports are needed by various groups such as shareholders, creditors, potential investors, columnist of financial newspapers, proprietors and others. In view of the utility of accounting reports to various interested parties, it becomes imperative to make this language capable of commonly understood by all. Accounting could become an intelligible and commonly understood language if it is based on generally accepted accounting principles. Hence, you must be familiar with the accounting principles behind financial statements to understand and use them properly.

2.2 MEANING AND FEATURES OF ACCOUNTING PRINCIPLES

For searching the goals of the accounting profession and for expanding knowledge in this field, a logical and useful set of principles and procedures are to be developed. We know that while driving our vehicles, follow a standard traffic rules. Without adhering traffic rules, there would be much chaos on the road. Similarly, some principles apply to accounting. Thus, the accounting profession cannot reach its goals in the absence of a set rules to guide the efforts of accountants and auditors. The rules and principles of accounting are commonly referred to as the conceptual frame-work of accounting.

Accounting principles have been defined by the Canadian Institute of Chartered Accountants as “The body of doctrines commonly associated with the theory and procedure of accounting serving as an explanation of current practices and as a guide for the selection of conventions or procedures where alternatives exists. Rules governing the formation of accounting axioms and the principles derived from them have arisen from common experience, historical precedent statements by individuals and professional bodies and regulations of Governmental agencies”. According to Hendriksen (1997), Accounting theory may be defined as logical reasoning in the form of a set of broad principles that (i) provide a general frame of reference by which accounting practice can be



evaluated, and (ii) guide the development of new practices and procedures. Theory may also be used to explain existing practices to obtain a better understanding of them. But the most important goal of accounting theory should be to provide a coherent set of logical principles that form the general frame of reference for the evaluation and development of sound accounting practices.

The American Institute of Certified Public Accountants (AICPA) has advocated the use of the word "Principle" in the sense in which it means "rule of action". It discusses the generally accepted accounting principles as follows:

Financial statements are the product of a process in which a large volume of data about aspects of the economic activities of an enterprise are accumulated, analysed and reported. This process should be carried out in conformity with generally accepted accounting principles. These principles represent the most current consensus about how accounting information should be recorded, what information should be disclosed, how it should be disclosed, and which financial statement should be prepared. Thus, generally accepted principles and standards provide a common financial language to enable informed users to read and interpret financial statements.

Generally accepted accounting principles encompass the conventions, rules and procedures necessary to define accepted accounting practice at a particular time..... generally accepted accounting principles include not only broad guidelines of general application, but also detailed practices and procedures (Source : AICPA Statement of the Accounting Principles Board No. 4, "Basic Concepts and Accounting Principles underlying Financial Statements of Business Enterprises", October, 1970, pp 54-55).

According to 'Dictionary of Accounting' prepared by Prof. P.N. Abroal, "Accounting standards refer to accounting rules and procedures which are relating to measurement, valuation and disclosure prepared by such bodies as the Accounting Standards Committee (ASC) of a particular country". Thus, we may define Accounting Principles as those rules of action or conduct which are adopted by the accountants universally while recording accounting transactions. Accounting principles are man-made. They are accepted because they are believed to be useful. The general acceptance of an accounting principle usually depends on how well it meets the following three basic norms:



- a) Usefulness
- b) Objectiveness
- c) Feasibility

A principle is useful to the extent that it results in meaningful or relevant information to those who need to know about a certain business. In other words, an accounting rule, which does not increase the utility of the records to its readers, is not accepted as an accounting principles. A principle is objective to the extent that the information is not influenced by the personal bias or Judgement of those who furnished it. Accounting principle is said to be objective when it is solidly supported by facts. Objectivity means reliability which also means that the accuracy of the information reported can be verified. Accounting principles should be such as are practicable. A principle is feasible when it can be implemented without undue difficulty or cost. Although these three features are generally found in ac-counting principles, an optimum balance of three is struck in some cases for adopting a particular rule as an accounting principle. For example, the principle of making the provision for doubtful debts is found on feasibility and usefulness though it is less objective. This is because of the fact that such provisions are not supported by any outside evidence.

2.3 ACCOUNTING PRINCIPLES

In dealing with the framework of accounting theory, we are confronted with a serious problem arising from differences in terminology. A number of words and terms have been used by different authors to express and explain the same idea or notion. The various terms used for describing the basic ideas are: concepts, postulates, propositions, assumptions, underlying principles, fundamentals, conventions, doctrines, rules, axioms, etc. Each of these terms is capable of precise definition. But, the accounting profession has served to give them lose and overlapping meanings. One author may describe the same idea or notion as a concept and another as a convention and still another as postulate. For example, the separate business entity idea has been described by one author as a concept and by another as conventions. It is better for us not to waste our time to discuss the precise meaning of generic terms as the wide diversity in these terms can only serve to confuse the learner. We do feel, however, that some of these terms/ideas have a better claim to be called 'concepts' while the rest should be called 'conventions'. The term 'Concept' is used to connote the accounting postulates, i.e., necessary assumptions and ideas which are fundamental to



accounting practice. In other words, fundamental accounting concepts are broad general assumptions which underline the periodic financial statements of business enterprises. The reason why some of these terms should be called concepts is that they are basic assumptions and have a direct bearing on the quality of financial accounting information. The term 'convention' is used to signify customs or tradition as a guide to the preparation of accounting statements. The following are the important accounting concepts and conventions:

Accounting Concepts	Accounting Conventions
Separate Business Entity Concept	Convention of Materiality
Money Measurement Concept	Convention of Conservatism
Dual Aspect Concept	Convention of Consistency
Going Concern Concept	
Accounting Period Concept	
Cost Concept	
Matching Concept	
Accrual Concept	
Realisation Concept	

2.4 ACCOUNTING CONCEPTS

The more important accounting concepts are briefly described as follows:

1. **Separate Business Entity Concept:** In accounting we make a distinction between business and the owner. All the books of accounts records day to day financial transactions from the view point of the business rather than from that of the owner. The proprietor is considered as a creditor to the extent of the capital brought in business by him. For instance, when a person invests Rs. 10 lakh into a business, it will be treated that the business has borrowed that much money from the owner and it will be shown as a 'liability' in the books of accounts of business. Similarly, if the owner of a shop were to take cash from the cash box for meeting



certain personal expenditure, the accounts would show that cash had been reduced even though it does not make any difference to the owner himself. Thus, in recording a transaction the important question is how does it affects the business ? For example, if the owner puts cash into the business, he has a claim against the business for capital brought in.

Insofar as a limited company is concerned, this distinction can be easily maintained because a company has a legal entity of its own. Like a natural person it can engage itself in economic activities of buying, selling, producing, lending, borrowing and consuming of goods and services. However, it is difficult to show this distinction in the case of sole proprietorship and partnership. Nevertheless, accounting still maintains separation of business and owner. It may be noted that it is only for accounting purpose that partnerships and sole proprietorship are treated as separate from the owner (s), though law does not make such distinction. Infact, the business entity concept is applied to make it possible for the owners to assess the performance of their business and performance of those who manage the enterprise. The managers are responsible for the proper use of funds supplied by owners, banks and others.

2. **Money Measurement Concept:** In accounting, only those business transactions are recorded which can be expressed in terms of money. In other words, a fact or transaction or happening which cannot be expressed in terms of money is not recorded in the accounting books. As money is accepted not only as a medium of exchange but also as a store of value, it has a very important advantage since a number of assets and equities, which are otherwise different, can be measured and expressed in terms of a common denominator. We must realise that this concept imposes two limitations.

Firstly, there are several facts which though very important to the business, cannot be recorded in the books of accounts because they cannot be expressed in money terms. For example, general health condition of the Managing Director of the company, working conditions in which a worker has to work, sales policy pursued by the enterprise, quality of product introduced by the enterprise, though exert a great influence on the productivity and profit-ability of the enterprise, are not recorded in the books. Similarly, the fact that a strike is about to begin because employees are dissatisfied with the poor working conditions in the factory will not be recorded even though this event is of great concern to the business. You will agree that all these have a bearing on the future profitability of the company.



Secondly, use of money implies that we assume stable or constant value of rupee. Taking this assumption means that the changes in the money value in future dates are conveniently ignored. For example, a piece of land purchased in 1990 for Rs. 2 lakh and another bought for the same amount in 1998 are recorded at the same price, although the first purchased in 1990 may be worth two times higher than the value recorded in the books because of rise in land values. In fact, most accountants know fully well that purchasing power of rupee does change but very few recognise this fact in accounting books and make allowance for changing price level.

3. **Dual Aspect Concept:** Financial accounting records all the transactions and events involving financial element. Each of such transactions requires two aspects to be recorded. The recognition of these two aspects of every transaction is known as a dual aspect analysis. According to this concept every business transaction has dual effect. For example, if a firm sells goods of Rs. 10,000 this transaction involves two aspects. One aspect is the delivery of goods and the other aspect is immediate receipt of cash (in the case of cash sales). In fact, the term 'double entry' book keeping has come into vogue because for every transaction two entries are made. According to this system the total amount debited always equals the total amount credited. It follows from 'dual aspect concept' that at any point in time owners' equity and liabilities for any accounting entity will be equal to assets owned by that entity. This idea is fundamental to accounting and could be expressed as the following equalities:

$$\text{Assets} = \text{Liabilities} + \text{Owners Equity} \dots\dots\dots(1)$$

$$\text{Owners' Equity} = \text{Assets} - \text{Liabilities} \dots\dots\dots(2)$$

The above relationship is known as the 'Accounting Equation'. The term 'Owners Equity' denotes the resources supplied by the owners of the entity while the term 'liabilities' denotes the claim of outside parties such as creditors, debenture-holders, bank against the assets of the business. Assets are the resources owned by a business. The total of assets will be equal to total of liabilities plus owners capital because all assets of the business are claimed by either owners or outsiders.

4. **Going Concern Concept:** Accounting assumes that the business entity will continue to operate for a long time in the future unless there is good evidence to the contrary. The enterprise is viewed as a going concern, that is, as continuing in operations, at least in the



foreseeable future. In other words, there is neither the intention nor the necessity to liquidate the particular business venture in the predictable future. Because of this assumption, the accountant while valuing the assets do not take into account forced sale value of them. In fact, the assumption that the business is not expected to be liquidated in the foreseeable future establishes the basis for many of the valuations and allocations in accounting. For example, the accountant charges depreciation of fixed assets values. It is this assumption which underlies the decision of investors to commit capital to enterprise. Only on the basis of this assumption can the accounting process remain stable and achieve the objective of correctly reporting and recording on the capital invested, the efficiency of management, and the position of the enterprise as a going concern. However, if the accountant has good reasons to believe that the business, or some part of it is going to be liquidated or that it will cease to operate (say within six-month or a year), then the re-sources could be reported at their current values. If this concept is not followed, International Accounting Standard requires the disclosure of the fact in the financial statements together with reasons.

5. **Accounting Period Concept:** This concept requires that the life of the business should be divided into appropriate segments for studying the financial results shown by the enterprise after each segment. Although the results of operations of a specific enterprise can be known precisely only after the business has ceased to operate, its assets have been sold off and liabilities paid off, the knowledge of the results periodically is also necessary. Those who are interested in the operating results of business obviously cannot wait till the end. The requirements of these parties force the businessman 'to stop' and 'see back' how things are going on. Thus, the accountant must report for the changes in the wealth of a firm for short time periods. A year is the most common interval on account of prevailing practice, tradition and government requirements. Some firms adopt financial year of the government, some other calendar year. Although a twelve month period is adopted for external reporting, a shorter span of interval, say one month or three month is applied for internal reporting purposes. This concept poses difficulty for the process of allocation of long term costs. All the revenues and all the cost relating to the year in operation have to be taken into account while matching the earnings and the cost of those earnings for the any accounting period. This holds good irrespective of whether or not they have been received in cash or paid in cash. De-spite the



difficulties which stem from this concept, short term reports are of vital importance to owners, management, creditors and other interested parties. Hence, the accountants have no option but to resolve such difficulties.

6. **Cost Concept:** The term ‘assets’ denotes the resources land building, machinery etc. owned by a business. The money values that are assigned to assets are derived from the cost concept. According to this concept an asset is ordinarily entered on the accounting records at the price paid to acquire it. For example, if a business buys a plant for Rs. 5 lakh the asset would be recorded in the books at Rs. 5 lakh, even if its market value at that time happens to be Rs. 6 lakh. Thus, assets are recorded at their original purchase price and this cost is the basis for all subsequent accounting for the business. The assets shown in the financial statements do not necessarily indicate their present market values. The term ‘book value’ is used for amount shown in the accounting records.

The cost concept does not mean that all assets remain on the accounting records at their original cost for all times to come. The asset may systematically be reduced in its value by charging ‘depreciation’, which will be discussed in detail in a subsequent lesson. Depreciation have the effect of reducing profit of each period. The prime purpose of depreciation is to allocate the cost of an asset over its useful life and not to adjust its cost. However, a balance sheet based on this concept can be very misleading as it shows assets at cost even when there are wide difference between their costs and market values. Despite this limitation you will find that the cost concept meets all the three basic norms of relevance, objectivity and feasibility.

7. **Matching Concept:** This concept is based on the accounting period concept. In reality we match revenues and expenses during the accounting periods. Matching is the entire process of periodic earnings measurement, often described as a process of matching expenses with revenues. In other words, income made by the enterprise during a period can be measured only when the revenue earned during a period is compared with the expenditure incurred for earning that revenue. Broadly speaking revenue is the total amount realised from the sale of goods or provision of services together with earnings from interest, dividend, and other items of income. Expenses are cost incurred in connection with the earnings of revenues. Costs incurred do not become expenses until the goods or services in question are exchanged. Cost



is not synonymous with expense since expense is sacrifice made, resource consumed in relation to revenues earned during an accounting period. Only costs that have expired during an accounting period are considered as expenses. For example, if a commission is paid in January, 2002, for services enjoyed in November, 2001, that commission should be taken as the cost for services rendered in November 2001. On account of this concept, adjustments are made for all prepaid expenses, outstanding expenses, accrued income, etc, while preparing periodic reports.

8. **Accrual Concept:** It is generally accepted in accounting that the basis of reporting income is accrual. Accrual concept makes a distinction between the receipt of cash and the right to receive it, and the payment of cash and the legal obligation to pay it. This concept provides a guideline to the accountant as to how he should treat the cash receipts and the right related thereto. Accrual principle tries to evaluate every transaction in terms of its impact on the owner's equity. The essence of the accrual concept is that net income arises from events that change the owner's equity in a specified period and that these are not necessarily the same as change in the cash position of the business. Thus it helps in proper measurement of income.
9. **Realisation Concept:** Realisation is technically understood as the process of converting non-cash resources and rights into money. As accounting principle, it is used to identify precisely the amount of revenue to be recognised and the amount of expense to be matched to such revenue for the purpose of income measurement. According to realisation concept revenue is recognised when sale is made. Sale is considered to be made at the point when the property in goods passes to the buyer and he becomes legally liable to pay. This implies that revenue is generally realised when goods are delivered or services are rendered. The rationale is that delivery validates a claim against the customer. However, in case of long run construction contracts revenue is often recognised on the basis of a proportionate or partial completion method. Similarly, in case of long run instalment sales contracts, revenue is regarded as realised only in proportion to the actual cash collection. In fact, both these cases are the exceptions to the notion that an exchange is needed to justify the realisation of revenue.

2.5 ACCOUNTING CONVENTIONS



1. **Convention of Materiality:** Materiality concept states that items of small significance need not be given strict theoretically correct treatment. In fact, there are many events in business which are insignificant in nature. The cost of recording and showing in financial statement such events may not be well justified by the utility derived from that information. For example, an ordinary calculator costing Rs. 100 may last for ten years. However, the effort involved in allocating its cost over the ten year period is not worth the benefit that can be derived from this operation. The cost incurred on calculator may be treated as the expense of the period in which it is purchased. Similarly, when a statement of outstanding debtors is prepared for sending to top management, figures may be rounded to the nearest ten or hundred. This convention will unnecessarily overburden an accountant with more details in case he is unable to find an objective distinction between material and immaterial events. It should be noted that an item material for one party may be immaterial for another. Actually, there are no hard and fast rule to draw the line between material and immaterial events and hence, it is a matter of judgement and common sense. Despite this limitation, it is necessary to disclose all material information to make the financial statement clear and understandable. This is required as per IAS-1 and also reiterated in IAS-5. As per IAS-1, materiality should govern the selection and application of accounting policies.
2. **Convention of Conservatism:** This concept requires that the accountants must follow the policy of “playing safe” while recording business transactions and events. That is why, the accountant follows the rule anticipate no profit but provide for all possible losses, while recording the business events. This rule means that an accountant should record lowest possible value for assets and revenues, and the highest possible value for liabilities and expenses. According to this concept, revenues or gains should be recognised only when they are realised in the form of cash or assets (i.e. debts) the ultimate cash realisation of which can be assessed with reasonable certainty. Further, provision must be made for all known liabilities, expenses and losses, Probable losses regarding all contingencies should also be provided for. ‘Valuing the stock in trade at market price or cost price whichever is less’, ‘making the provision for doubtful debts on debtors in anticipation of actual bad debts’, ‘adopting written down value method of depreciation as against straight line method’, not providing for discount on creditors but providing for discount on debtors’, are some of the



examples of the application of the convention of conservatism. The principle of conservatism may also invite criticism if not applied cautiously. For example, when the accountant creates secret reserves, by creating excess provision for bad and doubtful debts, depreciation, etc. The financial statements do not present a true and fair view of state of affairs. American Institute of Certified Public Accountant have also indicated that this concept needs to be applied with much more caution and care as over conservatism may result in misrepresentation.

- 3. Convention of Consistency:** The convention of consistency requires that once a firm decides on certain accounting policies and methods and has used these for some time, it should continue to follow the same methods or procedures for all subsequent similar events and transactions unless it has a sound reason to do otherwise. In other words, accounting practices should remain unchanged from one period to another. For example, if depreciation is charged on fixed assets according to straight line method, this method should be followed year after year. Analogously, if stock is valued at 'cost or market price whichever is less', this principle should be applied in each subsequent year. However, this principle does not forbid introduction of improved accounting techniques. If for valid reasons the company makes any departure from the method so far in use, then the effect of the change must be clearly stated in the financial statements in the year of change. The application of the principle of consistency is necessary for the purpose of comparison. One could draw valid conclusions from the comparison of data drawn from financial statements of one year with that of the other year. But the inconsistency in the application of accounting methods might significantly affect the reported data.

2.6 ACCOUNTING STANDARDS

The accounting concepts and conventions discussed in the foregoing pages are the core elements in the theory of accounting. These principles, however, permit a variety of alternative practices to co-exist. On account of this the financial results of different companies cannot be compared and evaluated unless full information is available about the accounting methods which have been used. The lack of uniformity among accounting practices has made it difficult to compare the financial results of different companies. It means that there should not be too much discretion to companies and their accountants to present financial information the way they like. In other words, the



information contained in financial statements should conform to carefully considered standards. Obviously, accounting standards are needed to:

- a) provide a basic framework for preparing financial statements to be uniformly followed by all business enterprises
- b) make the financial statements of one firm comparable with the other firm and the financial statements of one period with the financial statements of another period of the same firm
- c) make the financial statements credible and reliable, and
- d) create general sense of confidence among the outside users of financial statements.

In this context unless there are reasonably appropriate standards, neither the purpose of the individual investor nor that of the nation as a whole can be served. In order to harmonise accounting policies and to evolve standards the need in the USA was felt with the establishment of Securities and Exchange Commission (SEC) in 1933. In 1957, a research oriented organisation called Accounting Principles Boards (APB) was formed to spell out the fundamental accounting principles. After this the Financial Accounting Standards Board (FASB) was formed in 1973, in USA. At the international level, the need for standardisation was felt and therefore, an International Congress of accountants was organised in Sydney, Australia in 1972 to ensure the desired level of uniformity in accounting practices. Keeping this in view, International Accounting Standards Committee (IASC) was formed and was entrusted with the responsibility of formulating international standards.

In order to harmonise varying accounting policies and practices, the Institute of Chartered Accountants of India (ICAI) formed the Accounting Standards Board (ASB) in April, 1977. ASB includes representatives from industry and government. The main function of the ASB is to formulate accounting standards. This Board of the Institute of Chartered Accountants of India has so far formulated around 27 Accounting Standards, the list of these accounting standards is furnished. Regarding the position of Accounting standards in India, it has been stated that the standards have been developed without first establishing the essential theoretical framework. As a result, accounting standards lack direction and coherence. This type of limitation also existed in UK and USA but it was remedied long back.



Hence, there is an emergent need to make an attempt to develop a conceptual framework and also revise suitably the Indian Accounting Standards to reduce the number of alternative treatments.

2.7 CHECK YOUR PROGRESS

Fill in the Blanks

1. An accounting rule, which does not increase the utility of the records to its readers, is not accepted as an accounting
2. Accounting principle is said to be..... when it is solidly supported by facts.
3. The term is used to connote the accounting postulates, i.e., necessary assumptions and ideas which are fundamental to accounting practice.
4. Fundamental accounting concepts are broad which underline the periodic financial statements of business enterprises.
5. The term is used to signify customs or tradition as a guide to the preparation of accounting statements.

2.8 SUMMARY

Accounting principles have been defined as the body of doctrines commonly associated with the theory and procedure of accounting serving as an explanation of current practices and as a guide for the selection of conventions or procedures where alternatives exist. Rules governing the formation of accounting axioms and the principles derived from them have arisen from common experience, historical precedent statements by individuals and professional bodies and regulations of Governmental agencies. The general acceptance of an accounting principle usually depends on how well it meets the following three basic norms: a) Usefulness b) Objectiveness, and c) Feasibility. The various terms used for describing the basic ideas are: concepts, postulates, propositions, assumptions, underlying principles, fundamentals, conventions, doctrines, rules, axioms, etc. Some of these terms/ideas have a better claim to be called 'concepts' while the rest should be called 'conventions'. The term 'Concept' is used to connote the accounting postulates, i.e., necessary assumptions and ideas which are fundamental to accounting practice. In other words, fundamental accounting concepts are broad general assumptions which underline the periodic financial statements of business enterprises. The term 'convention' is used to signify



customs or tradition as a guide to the preparation of accounting statements. The important accounting concepts and conventions include Separate Business Entity Concept, Money Measurement Concept, Dual Aspect Concept, Going Concern Concept, Accounting Period Concept, Cost Concept, The Matching Concept, Accrual Concept, Realisation Concept, Convention of Materiality, Convention of Conservatism and Convention of consistency. In order to harmonise accounting policies and to evolve standards 'International Accounting Standards Committee' was formed and was entrusted with the responsibility of formulating international standards. Similarly, the Institute of Chartered Accountants of India (ICAI) formed the Accounting Standards Board in April, 1977 which has issued as many as 29 accounting standards over the years.

2.9 KEYWORDS

Accounting principle: Accounting principles are the assumptions and roles of accounting, the methods and procedures of accounting and the application of these rules, methods and procedures to the actual practice of accounting.

Accounting concept: It refers to assumptions and conditions on which accounting system is based.

Accounting convention: Accounting convention refers to the customs and traditions followed by accountants as guidelines while preparing accounting statements.

2.10 SELF-ASSESSMENT TEST

1. State whether the following statements are true or false:

- a) The 'materiality concept' refers to the state of ignoring small items and values from accounts.
- b) Accounting principles are rules of action or conduct which are adopted by the accountants universally while recording accounting transactions.
- c) The 'separate entity concept' of accounting is not applicable to sole trading concerns and partnership concerns.
- d) The 'dual aspect' concept results in the accounting equation: $\text{Capital} + \text{Liabilities} = \text{Assets}$
- e) The 'conservatism concept' leads to the exclusion of all unrealised profits.
- f) The balance sheet based on 'Cost concept' is of no use to a potential investor.



- g) Accounting standards are statements prescribed by government regulatory bodies.
- h) Accounting statements are statements prescribed by professional accounting bodies.
- i) Accounting concepts are broad assumptions

Ans : a) False b) True c) False d) True e) True f) True g) False h) True i) True

2. Choose the correct answer from the alternations given:

- i. Accounting standards are statements prescribed by
 - a) Law
 - b) Bodies of Shareholders
 - c) Professional Accounting Bodies
- ii. Accounting Principles are generally based on
 - a) Practicability
 - b) Subjectivity
 - c) Convenience in Recording
- iii. The Policy of 'anticipate no profit and provide for all possible losses' arises due to convention of
 - a) Consistency
 - b) Disclosure
 - c) Conservatism
- iv. Which is the accounting concept that requires the practice of crediting closing stock to the trading account
 - a) Going Concern
 - b) Cost
 - c) Matching
- v. The convention of conservatism, when applied to the balance sheet, results in
 - a) Understatement of Assets
 - b) Understatement of Liabilities
 - c) Understatement of Capital

Ans: i(c) ii(a) iii(c) iv(c) v(a)



3. Discuss briefly the basic concepts and conventions of accounting?
4. Write short notes on:
 - a) Going Concern Concept
 - b) Dual Aspect Concept
 - c) Business Entity Concept
 - d) Convention of Materiality
 - e) Convention of Conservatism
5. Why accounting practices should be standardised? Explain.

2.11 ANSWER TO CHECK YOUR PROGRESS

Answer to Fill in the Blanks

1. An accounting rule, which does not increase the utility of the records to its readers, is not accepted as an accounting **principles**.
2. Accounting principle is said to be **objective** when it is solidly supported by facts.
3. The term '**Concept**' is used to connote the accounting postulates, i.e., necessary assumptions and ideas which are fundamental to accounting practice.
4. Fundamental accounting concepts are broad **general assumptions** which underline the periodic financial statements of business enterprises.
5. The term '**convention**' is used to signify customs or tradition as a guide to the preparation of accounting statements.

2.12 REFERENCES/SUGGESTED READINGS

1. S.N. Maheshwari, Advanced Accountancy
2. R.L. Gupta, Advanced Accountancy
3. M.C. Sukhla and T.S. Grewal, Advanced Accounts



Subject: Accounting for Managers	
Course Code: MBA 104	Author: Dr M. C. Garg
Lesson No. 3	Vetter:

ACCOUNTING PROCESS: EQUATION, RULES, PREPARATION OF JOURNAL AND LEDGER

STRUCTURE

3.0 Learning Objectives

3.1 Introduction

3.2 Accounting Equation

3.3 Rules of Debit and Credit

3.4 Meaning and Format of Journal

3.4.1 Meaning of Journalising

3.4.2 Compound Journal Entry

3.4.3 Opening Entry

3.4.4 Goods Account

3.5 Ledger

3.5.1 Relationship Between Journal and Ledger

3.5.2 Posting

3.5.3 Rules of Posting

3.5.4 Balancing of an Account

3.6 Check Your Progress

3.7 Summary

3.8 Keywords



3.9 Self-Assessment Test

3.10 Answer to Check Your Progress

3.11 References/Suggested Readings

3.0 LEARNING OBJECTIVES

After reading this lesson, you should be able to:

- Define accounting equation
- Make the classification of accounts
- Explain the stages in accounting process

3.1 INTRODUCTION

Any economic transaction or event of a business which can be expressed in monetary terms should be recorded. Traditionally, accounting is a method of collecting, recording, classifying, summarizing, presenting and interpreting financial data of an economic activity. The series of business transactions occurs during the accounting period and its recording is referred to an accounting process/ mechanism. An accounting process is a complete sequence of accounting procedures which are repeated in the same order during each accounting period. Therefore, accounting process involves the following steps:

- 1) Identification of Transaction:** In accounting, only financial transactions are recorded. A financial transaction is an event which can be expressed in terms of money and which brings change in the financial position of a business enterprise. An event is an incident or a happening which may or may not bring any change in the financial position of a business enterprise. Therefore, all transactions are events but all events are not transactions. A transaction is a complete action, to an expected or possible future action. In every transaction, there is movement of value from one source to another. For example, when goods are purchased for cash, there is a movement of goods from the seller to the buyer and a movement of cash from buyer to the seller. Transactions may be external (between a business entity and a second party, e.g., goods sold on credit to Hari or internal (do not involve second party, e.g., depreciation charged on the machinery).

**Illustration 1**

State with reasons whether the following events are transactions or not to Mr. Nikhil, Proprietor, Delhi Computers:

1. Mr. Nikhil started business with capital (brought in cash)Rs. 40,000.
2. Paid salaries to staff Rs. 5,000.
3. Purchased machinery for Rs. 20,000 in cash.
4. Placed an order with Sen & Co. for goods for Rs. 5,000.
5. Opened a Bank account by depositing Rs. 4,000.
6. Received pass book from bank.
7. Appointed Sohan as Manager on a salary of Rs. 4,000 per month.
8. Received interest from bank Rs. 500.
9. Received a price list from Lalit.

Solution:

Here, each event is to be considered from the view point of Mr. Nikhil's business. Those events which will change the financial position of the business of Mr. Nikhil, should be regarded as transaction.

1. It is a transaction, because it changes the financial position of Mr. Nikhil's business. Cash will increase by Rs. 40,000 and Capital will increase by Rs. 40,000.
2. It is a transaction, because it changes the financial position of Mr. Nikhil's business. Cash will decrease by Rs. 5,000 and Salaries (expenses) will increase by Rs. 5,000
3. It is a transaction, because it changes the financial position of Mr. Nikhil's business. Machinery comes in and cash goes out.
4. It is not a transaction, because it does not change the financial position of the business.
5. It is a transaction, because it changes the financial position of the business. Bank balance will increase by Rs. 4,000 and cash balance will decrease by Rs. 4,000
6. It is also not a transaction, because it does not change the financial position of Mr. Nikhil.
7. It is also not a transaction, because it does not change the financial position of Mr. Nikhil.



8. It is a transaction, because it changes the financial position of Mr. Nikhil's business
9. It is not a transaction, because it does not change the financial position of the business of Mr. Nikhil.

- 2) **Recording the Transaction:** Journal is the first book of original entry in which all transactions are recorded event-wise and date-wise and presents a historical record of all monetary transactions. Journal may further be divided into sub-journals as well.
- 3) **Classifying:** Accounting is the art of classifying business transactions. Classification means statement setting out for a period where all the similar transactions relating to a person, a thing, expense, or any other subject are grouped together under appropriate heads of accounts.
- 4) **Summarizing:** Summarising is the art of making the activities of the business enterprise as classified in the ledger for the use of management or other user groups i.e. sundry debtors, sundry creditors etc. Summarisation helps in the preparation of Profit and Loss Account and Balance sheet for a particular financial year.
- 5) **Analysis and Interpretation:** The financial information or data is recorded in the books of account must further be analysed and interpreted so to draw meaningful conclusions. Thus, analysis of accounting information will help the management to assess in the performance of business operation and forming future plans also.
- 6) **Presentation or reporting of financial information:** The end users of accounting statements must be benefited from analysis and interpretation of data as some of them are the "shareholders" and other one the "stakeholders". Comparison of past and present statements and reports, use of ratios and trend analysis are the different tools of analysis and interpretation.

From the above discussion one can conclude that accounting is an art which starts and includes steps right from recording of business transactions of monetary character to the communicating or reporting the results thereof to the various interested parties. For this purpose, the transactions are classified into various accounts, the description of which follows in the next section.

3.2 ACCOUNTING EQUATION



Dual concept states that 'for every debit, there is a credit'. Every transaction should have two-sided effect to the extent of same amount. This concept has resulted in accounting equation which states that at any point of time assets of any entity must be equal (in monetary terms) to the total of owner's equity and outsider's liabilities. In other words, accounting equation is a statement of equality between the assets and the sources which finance the assets and is expressed as:

$$\text{Assets} = \text{Sources of Finance}$$

Assets may be tangible e.g. land, building, plant, machinery, equipment, furniture, investments, cash, bank, stock, debtors etc. or intangible e.g. patent rights, trade marks, goodwill etc.,

Sources include internal i.e. capital provided by the owner and external i.e. liabilities. Liabilities are the obligations of the business to others/ outsiders. The above equation gets expanded.

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

All transactions of a business can be referred to this equation:

$$\text{Assets} = \text{Liabilities} + \text{Owner's equity}$$

To further explain the transaction of revenues, expenses, losses and gains, the equation can be expanded thus:

$$\text{Assets} + \text{Expenses} = \text{Liabilities} + \text{Revenue} + \text{Owner's equity}$$

$$\text{Assets} = \text{Liabilities} + (\text{Revenue} - \text{Expenses}) + \text{Owner's equity}$$

$$\text{Assets} = \text{Liabilities} + \text{Owner's equity} + \text{Owner's equity}$$

$$\text{Assets} = \text{Liabilities} + \text{Owner's equity}$$

$$\text{Assets} = \text{Liabilities} + \text{Owner's equity}$$

Let us consider the facts of the following case, step by step, to understand as to how the equation remains true even in changed circumstances.

Illustration 2

1. Commenced business with cash Rs. 50,000
2. Purchased goods for cash Rs. 20,000 and on credit Rs. 30,000



3. Sold goods for cash Rs. 40,000 costing Rs. 30,000
4. Rent paid Rs. 500
5. Bought furniture Rs. 5,000 on credit
6. Bought refrigerator for personal use Rs. 5,000

Solution:

1. Business receives cash Rs. 50,000 (asset) and it owes Rs. 50,000 to the proprietor as his capital i.e. equity.

Assets	(=)	Liabilities	(+)	Owner's equity	
Cash	Rs. 50,000	Nil		Capital	Rs. 50,000

2. Purchased goods for cash Rs. 20,000 and on credit Rs. 30,000. Business has acquired asset namely – goods worth Rs. 50,000 and another asset namely = cash has decreased by Rs. 20,000 while liability– creditors have been created of Rs. 30,000.

Assets	(=)	Liabilities	(+)	Owner's equity	
Cash	30,000	Creditors	30,000	Capital	50,000
Goods	50,000				
	80,000		30,000		50,000

3. Sold goods for cash Rs. 40,000 costing Rs. 30,000. This transaction has resulted in decrease of goods by Rs. 30,000 and increase in cash by Rs. 40,000 thus Increasing equity by Rs. 10,000.

Assets	(=)	Liabilities	(+)	Owner's equity	
Cash	70,000	Creditors	30,000	Capital	60,000
Goods	20,000				
	90,000		30,000		60,000



4. Rent paid Rs. 500. This transaction has resulted in an expenditure of Rs. 500 effecting decrease of cash and equity by Rs. 500 each.

Assets	(=)	Liabilities	(+)	Owner's equity	
Cash	69,500	Creditors	30,000	Capital	59,500
Goods	20,000				
	89,500		30,000		59,500

5. Bought furniture on credit Rs. 5,000. This transaction results in acquiring an asset namely furniture worth Rs. 5,000 and increasing creditors by Rs. 5,000.

Assets	(=)	Liabilities	(+)	Owner's equity	
Cash	69,500	Creditors	35,000	Capital	59,500
Goods	20,000				
Furniture	5,000				59,500
	94,500		35,000		

6. Bought refrigerator for personal use Rs. 5,000. This transaction will have the effect of reducing both cash as well as capital by Rs. 5,000 each.

Assets	(=)	Liabilities	(+)	Owner's equity	
Cash	64,500	Creditors	35,000	Capital	54,500
Goods	20,000				
Furniture	5,000				
	89,500		35,000		54,500

Account



An account is a summary of the relevant transactions at one place relating to a particular head. It records not only the amount of transaction but also their effect and direction.

Classification of Accounts

The classification of accounts is given as follows:

- 1. Personal Accounts:** Accounts which are related to individuals, firms, companies, co-operative societies, banks, financial institutions are known as personal accounts. The personal accounts may further be classified into three categories:
 - **Natural Personal Accounts:** Accounts of individuals (natural persons) such as Akhils' A/c, Rajesh's A/c, Sohan's A/c are natural personal accounts.
 - **Artificial Personal Accounts:** Accounts of firms, companies, banks, financial institutions such as Reliance Industries Ltd., Lions Club, M/s Sham & Sons, Punjab National Bank, National College are artificial personal accounts.
 - **Representative Personal Accounts:** The accounts recording transactions relating to limited expenses and incomes are classified as nominal accounts. But in certain cases (due to the matching concept of accounting) the amount on a particular date, is payable to the individuals or recoverable from individuals. Such amount (i) relates to the particular head of expenditure or income and (ii) represents persons to whom it is payable or from whom it is recoverable. Such accounts are classified as representative personal account e.g., Wages outstanding account, Pre-paid insurance account etc.
- 2. Real Accounts:** Real accounts are the accounts related to assets/properties. These may be classified into tangible real account and intangible real account. The accounts relating to tangible assets (which can be touched, purchased and sold) such as building, plant, machinery, cash, furniture etc. are classified as tangible real accounts. Intangible real accounts (which do not have physical shape) are the accounts related to intangible assets such as goodwill, trademarks, copyrights, patents etc.
- 3. Nominal Accounts:** The accounts relating to income, expenses, losses and gains are classified as nominal accounts. For example Wages Account, Rent Account, Interest Account, Salary Account, Bad Debts Accounts, Purchases; Account etc. fall in the category of nominal accounts.



3.3 RULES OF DEBIT AND CREDIT

Basically, debit means to enter an amount to the left side of an account and credit means to enter an amount to the right side of an account. In the abbreviated form Dr. stands for debit and Cr. stands for credit. Both debit and credit may represent either increase or decrease depending upon the nature of an account.

The Rules for Debit and Credit are given below:

Types of Accounts	Rules for Debit	Rules for Credit
(a) For Personal Accounts	Debit the receiver	Credit the giver
(b) For Real Accounts	Debit what comes in	Credit what goes out
(c) For Nominal Accounts	Debit all expenses and losses	Credit all incomes and gains

Illustration 3

How will you classify the following into personal, real and nominal accounts?

1. Investments
2. Freehold Premises
3. Accrued Interest to Ram
4. Haryana Agro Industries Corporation
5. Janata Mechanical Works
6. Salary Account
7. Loose Tools Accounts
8. Purchases Account
9. Corporation Bank Ltd.
10. Capital Account
11. Brokerage Account



12. Toll Tax Account
13. Dividend Received Account
14. Royalty Account
15. Sales Account

Solution:

Real Account: 1, 2, 7, 13, 15

Nominal Account: 6, 11, 12, 13, 14

Personal Account: 3, 4, 5, 9, 10

3.4 MEANING AND FORMAT OF JOURNAL

Journal is a historical record of business transactions or events. The word journal comes from the French word "Jour" meaning "day". It is a book of original or prime entry written up from the various source documents. Journal is a primary book for recording the day to day transactions in a chronological order i.e. in the order in which they occur. The journal is a form of diary for business transactions. This is also called the book of first entry since every transaction is recorded firstly in the journal. The format of a journal is shown as follows:

JOURNAL

Date	Particulars	L.F.	Debit	Credit
			(Rs.)	(Rs.)

- a) **Date Column:** This column shows the date on which the transaction is recorded. The year and month is written once, till they change.
- b) **Particular 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.



- c) **L.F. i.e., Ledger Folio Column:** Under this column, the ledger page number containing the relevant account is entered at the time of posting.
- d) **Debit Amount Column:** Under this column, the amount to be debited is entered.
- e) **Credit Amount Column:** Under this column, the amount to be credited is entered.

3.4.1 Meaning of Journalising

The process of recording a transaction in the journal 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 is the nature of the accounts involved.

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 name 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.

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.

Advantages of Journal

1. The transactions are recorded in journal as and when they occur so the chances of error is minimized.



2. It help in preparation of ledger.
3. Any transfer from one account to another account is made through Journal.
4. The entry recorded in journal are self-explanatory as it includes narration also.
5. It can record any such transaction which cannot be entered in any other books of account.
6. Every transaction is recorded in chronological order (date wise) so the chances of manipulations are reduced.
7. Journal shows all information in respect of a transaction at one place.
8. The closing balances of previous year of accounts related to assets and liabilities can be brought forward to the next year by passing journal entry in journal.

Illustration 4

From the following transactions of Nikhil, find out the nature of accounts and also state which account should be debited and which should be credited:

- i) Rent paid
- ii) Interest received
- iii) Purchased furniture for cash
- iv) Machinery sold in cash
- v) Outstanding salaries
- vi) Paid to Surinder

Solution

ANALYSIS OF TRANSACTION

Transaction	Accounts Involved	Nature of Accounts	Debit/ Credit
i) Rent paid	Rent Account	Nominal Account	Debit
	Cash Account	Real Account	Credit
ii) Interest Received	Cash Account	Real Account	Debit



	Interest Account	Nominal	Credit
iii) Purchased furniture for cash	Furniture Account	Real Account	Debit
	Cash Account	Real Account	Credit
iv) Machinery sold in cash	Cash Account	Real Account	Debit
	Machinery Account	Real Account	Credit
v) Outstanding Salary	Salary Account	Nominal Account	Debit
	Outstanding Salary	Personal Account	Credit
	Account		
vi) Paid to Surinder	Surinder's Account	Personal Account	Debit
	Cash Account	Real Account	Credit

Illustration 5

Journalise the following transactions:

2005		Rs.
Jan. 1	Mohan started business with cash	80,000
Jan. 6	Purchased goods from Ram on credit	30,000
Jan. 8	Sold goods on cash	6,000
Jan. 15	Bought Furniture from Yash for cash	8,000
Jan. 18	Paid Salary to manager	6,500
Jan. 20	Paid Rent to land lord in cash	1,000

Solution:**Journal**



Date	Particulars	L.F. No.	Debit (Rs.)	Credit (Rs.)
Jan. 1 2005	Cash Account Dr To Mohan's Capital Account (Being business started with cash)		80,000	80,000
Jan. 6 2005	Purchases Account Dr To Ram's Account (Being purchase on credit)		30,000	30,000
Jan. 8 2005	Cash Account Dr To Sales Account (Being sold goods for cash)		6,000	6,000
Jan. 15 2005	Furniture Account Dr To Cash Account (Being bought furniture for cash)		8,000	8,000
Jan. 18 2005	Salary Account Dr To Cash Account (Being salary paid to manager)		6,500	6,500
Jan. 20 2005			1,000	



	Rent Account	Dr			
	To Cash Account				1,000
	(Being rent paid to land lord)				

3.4.2 Compound Journal Entries

When more than two accounts are involved in a transaction and the transaction is recorded by means of a single journal entry instead of passing several journal entries, such single journal entry is termed as 'Compound Journal Entry'.

Illustration 6 : Journalise the following :

2005

Nov. 1 Paid to Arun Rs. 5,250 discount allowed by him Rs.50

Nov. 6 Received from Somesh Rs. 1,900 and from Komesh Rs. 400

Nov. 8 Good Purchased for cash Rs. 4000

Furniture purchased for cash Rs. 3000

Paid cash to Raman Rs. 2090

Paid salary in cash Rs. 7600

Paid Rent in cash Rs. 1400

Solution:

Journal

Date	Particular	L.F. No.	Debit (Rs.)	Credit (Rs.)
Nov. 1	Arun's Account Dr		5300	
	To Cash Account			5250
	To Discount Received Account			50



	<i>(Being the cash paid to Arun and discount received)</i>				
Nov. 6	Cash Account	Dr		2300	
	To Somesh's Account				1900
	To Komesh's Account				400
	<i>(Being cash received)</i>				
Nov. 8	Purchases Account	Dr		4000	
	Furniture Account	Dr		3000	
	Raman's Account	Dr		2090	
	Salary Account	Dr		7600	
	Rent Account	Dr		1400	
	To Cash Account				18090
	<i>(Being the cash paid)</i>				

3.4.3 Opening Entry

A journal entry by means of which the balances of various assets, liabilities and capital appearing in the balance sheet of previous accounting period are brought forward in the books of the current accounting period, is known as 'Opening Entry'. While passing an opening entry, all assets accounts (individually) are debited and all liabilities accounts (individually) are credited and the Net worth (i.e. excess of assets over liabilities) is credited to Proprietor's Capital Account (in case of a proprietary concern) or Partners' Capital Accounts (in case of a partnership concern).

Illustration 7

On 1st April 2006, Singh's assets and liabilities stood as follows:

Assets: Cash Rs. 6,000; Bank Rs. 17,000; Stock Rs. 3,000; Bills Receivable Rs.7,000; Debtors Rs. 3,000; Building Rs.70,000; Investments Rs. 30,000; Furniture Rs. 4,000.

Liabilities: Bills payable Rs. 5000, Creditors Rs. 9000, Ram's Loan Rs. 13000.

Pass an opening Journal entry.

Solution:



Opening Journal Entry

Date	Particular	L. F. No.	Debit (Rs.)	Credit (Rs.)
2006 April 1	Cash Account Dr		6000	
	Bank Account Dr		17000	
	Stock Account Dr		3000	
	Bills Receivable Account Dr		7000	
	Debtors Account Dr		3000	
	Building Account Dr		70000	
	Investment Account Dr		30000	
	Furniture Account Dr		4000	
	To Bills payable Account			5000
	To Creditor's Account			9000
	To Ram's loan Account			13000
	To Singh's capital			113000
	<i>(Being the opening balances of assets and liabilities)</i>			
			140000	140000

3.4.4 Goods Account

In accounting the meaning of goods is restricted to only those articles which are purchased by a businessman with an intention to sell it. For example, if a businessman purchased typewriter, it will be goods for him if he deals in typewriter but if he deals in other business say clothes then typewriter will be asset for him and clothes will be goods.

Subdivision of Goods Account:

The goods account is not opened in accounting books. In place of goods account the following accounts are opened in the books of accounts:

Purchases Account: This is opened for goods purchased on cash and credit.

Sales Account: This account is opened for the goods sold on cash and credit.



Purchase Returns Account or Return Outward Account: This account is opened for the goods returned to suppliers.

Sales Returns Account or Return Inward Account: This account is opened for the goods returned by customers.

IMPORTANT CONSIDERATIONS FOR RECORDING THE BUSINESS TRANSACTIONS

- Trade Discount:** Trade discount is usually allowed on the list price of the goods. It may be allowed by producer to wholesaler and by wholesaler to retailer for purchase of goods in large quantity. It is not recorded in the books of account and entry is made only with the net amount paid or received. For example purchased goods of list price Rs. 8,000 at 15% trade discount from X. In this case the following entry will be passed:

		Rs.	Rs.
Purchases Account	Dr.	6,800	
To X			6,800
(Being goods purchased at 15% trade discount less list price)			

- Cash Discount:** Cash discount is a concession allowed by seller to buyer to encourage him to make early cash payment. It is a Nominal Account. The person who allows discount, treat it as an expense and debits in his books and it is called discount allowed and the person who receives discount, treat it as an income and it is called discount received and credited in his books of account as "Discount Received Account." For example, X owes Rs. 6,000 to Y. He pays Rs. 5,950 in full settlement against the amount due. In the books of X, the journal entry will be:

In the Books of X		Rs.	Rs.
Y	Dr.	6,000	
To Cash Account			5,950



To Discount Received account (Being Cash paid and discount received)			50
In the books of Y		Rs.	Rs.
Cash Account Dr.		5,950	
Discount Allowed Account Dr.		50	
To X (Being Cash received and discount allowed)			6,000

3. **Goods distributed as free samples:** Sometimes business distribute goods as free samples for the purpose of advertisement. In this case, Advertisement Account is debited and Purchases Account is credited. For example, goods costing Rs. 8000 were distributed as free sample. To record this transaction following entry will be passed:

		Rs.	Rs.
Advertisement Account Dr.		8,000	
To Purchases Account (Being goods distributed as a free sample)			8,000

4. **Interest on Capital:** Interest paid on capital is an expense. Therefore interest account should be debited. On the other hand the capital of the business increases. So the capital account should be credited. The entry will be as follows:

		Rs.	Rs.
Interest on Capital Account Dr.		-	
To capital Account (Being interest paid on capital)			-



5. **Interest Charged on Drawings:** If the interest is charged on drawings then it will be an increase in the income of business, so interest on drawings will be credited. On the other hand there will be increase in drawings or decrease in Capital. So Drawings Account will be debited. To record this, following entry will be passed:

	Rs.	Rs.
Drawing/Capital Account Dr.	-	
To interest on Drawing Account		-
(Being interest charged on drawing)		

6. **Depreciation Charged on Fixed Assets:** Depreciation is the gradual, permanent decrease in the value of an asset due to wear and tear and many other causes. Depreciation is an expense so the following entry will be passed:

	Rs.	Rs.
Depreciation Account Dr.	-	
To Fixed Asset Account		-
(Being Depreciation charged on Fixed Asset)		

7. **Bad Debts:** Sometimes a debtor of business fails to pay the amount due from him. Reasons may be many e.g. he may become insolvent or he may die. Such irrecoverable amount is a loss to the business. To record this following entry will be passed:

	Rs.	Rs.
Bad Debts Account Dr.	-	
To Debtor Account		-
(Being debtor fail to pay the amount due from him)		



- 8. Bad Debts Recovered:** When any amount becomes irrecoverable from any costumer or debtor his account is closed in the books. If in future any amount is recovered from him then his personal account will not be credited because that does not exist in the books. So the following entry is passed:

	Rs.	Rs.
Cash Account Dr.	-	
To Bad Debt Recover Account		-
(Being bad debt amount recover from debtor)		

- 9. Purchase and Sale of Investment:** When business has some surplus money it may invest this amount is shares, debentures or other types of securities. When these securities are purchased, these are recorded at the purchase price paid. At the time of sale of investment the sale price of an investment is recorded in the books of accounts. The following entry is passed to record the purchase of investment:

	Rs.	Rs.
Investment Account Dr.	-	
To Cash Account		-
(Being purchase of investment)		
Cash Account Dr.		
To Investment Account		
(Being sale of investment)		

- 10. Loss of Goods by Fire/Accident/theft:** A business may suffer loss of goods on account of fire, theft or accident. It is a business loss and a nominal account. It also reduces the goods at cost price, and increases the loss/expenses of the business. The entry will be passed as:

	Rs.	Rs.
Loss by Fire/Accident/Theft Dr.	-	



Insurance Company Account	Dr.	-	
To Purchase Account			-
(Being loss of goods by fire, accident/theft)			

- 11. Income Tax Paid:** Income Tax paid should be debited to Capital Account or Drawings Account and credited to Cash Account in case of sole proprietorship and partnership firms. The reason behind this is that income tax is a personal expense for the sole trader and partners because it is paid on income of proprietor. The entry will be as follows:

		Rs.	Rs.
Capital/Drawing Account	Dr.	-	
To Cash Account			-
(Being income tax paid)			

- 12. Bank Charges:** Bank provide various services to their customers. Bank deducts some charges by debiting the account of customers. It is an expense for the business. To record this, Bank charges account is debited and bank account is credited in the books of customer.

- 13. Drawing Account:** It is a personal account of the proprietor. When the businessman withdraws cash or goods from the business for his personal/domestic use it is called as 'drawings'. Drawings reduce the capital as well as goods/cash balance of the business. The journal entry is:

		Rs.	Rs.
Drawing Account	Dr.	-	
To Purchases Account		-	
To Cash Account			-
(Being withdrawal of goods for personal use)			



14. Personal Expenses of Proprietor: When the private expenses such as life insurance premium, income tax, home telephone bill, tuition fees of the son of the proprietor etc. are paid out of the cash or bank account of business it should be debited to the Drawings Account of the proprietor.

15. Sale of Asset/Property: When the asset of a business is sold, there may occur a profit or loss on its sale. Its journal entry is:

In case of Sale of asset/property on profit:

	Rs.	Rs.
Cash/Bank Account Dr.	-	
To Asset/Property Account	-	
To profit on sale of asset/property Account		-
(Being profit on sale of Asset/Property)		

In Case sale of Asset/Property on loss:

	Rs.	Rs.
Cash/Bank Account Dr.	-	
Loss on Sale Dr.		
To Asset/Property Account	-	
(Being loss on sale of Asset/Property)		

16. Amount paid or Received on behalf of customer:

When the business entity pays the amount on behalf of old reputed customers such as carriage in anticipation of recovering the same later on, carriage account should not be opened because carriage is not the expense of the seller. It should be debited/charged to customer's Personal account



When the business entity receives the amount on behalf of customers from the third party as mutually settled between the third party and the customer, the account of the third party/person making the payment should not be opened in the books of the receiving entity. The journal entry in the books of the entity is:

	Rs.	Rs.
Cash/Bank Account Dr.	-	
To Customer/Debtor Account		-
(Being cash receive on behalf of third party)		

17. Amount paid on behalf of creditors: When the creditors/supplier instructs the business entity to make payment on their behalf, the amount so paid should be debited to creditors account and liability of the business will decrease accordingly.

18. The events affecting business but they do not involve any transfer/exchange of money for the time being, they would not be recorded in the financial books.

19. Paid wages/installation charges for erection of machinery: Wages and installation charges are the expenses of nominal nature. But for erection of machinery no separate account should be opened for such expenses because these expenses are of capital nature and it will be merged/debited to the cost of assets i.e. machinery. The journal entry is:

	Rs.	Rs.
Machinery Account Dr.	-	
To Cash/Bank Account		-
(Being wages and installations charges)		

3.5 LEDGER

Journal is a daily record of all business transactions. In the journal all transactions relating to persons, expenses, assets, liabilities and incomes are recorded. Journal does not give a complete picture of the fundamental elements of book keeping i.e. properties, liabilities, proprietorship accounts and expenses and incomes at a glance and at one place. Business transactions being



recurring in nature, a number of entries are made for a particular type of transactions such as sales, purchases, receipts and payments of cash, expenses etc., throughout the accounting year. The entries are therefore scattered over in the Journal. In fact, the whole Journal will have to be gone through to find out the combined effect of various transactions on a particular account. In case, at any time, a businessman wants to now:

- 1) How much he has to pay to the suppliers/creditors of goods?
- 2) How much he has to receive from the customers?
- 3) What is the total amount of purchases and sales made during a particular period?
- 4) How much cash has been spent/incurred on various items of expenses such as salaries, rent, carriage, stationery etc.,
- 5) What is the amount of profit or loss made during a particular period?
- 6) What is the financial position of the unit on a particular date?

The above mentioned information cannot be easily gathered from the journal itself because the details of such information is scattered all over the journal. It is thus of dire need to get a summarised/grouped record of all the transactions relating to a particular person, or a thing or an expenditure to take managerial decisions. The mechanics of collecting, assembling and summarising all transactions of similar nature at one place can better be served by a book known as 'ledger' i.e. a classified head of accounts.

Ledger is a principal book of accounts of the enterprise. It is rightly called as the 'King of Books'. Ledger is a set of accounts. Ledger contains the various personal, real and nominal accounts in which all business transactions of the entity are recorded. The main function of the ledger is to classify and summarise all the items appearing in Journal and other books of original entry under appropriate head/set of accounts so that at the end of the accounting period, each account contains the complete information of all transaction relating to it. A ledger therefore is a collection of accounts and may be defined as a summary statement of all the transactions relating to a person, asset, expense or income which have taken place during a given period of time and shows their net effect.

3.5.1 Relationship between Journal and Ledger



Journal and Ledger are the most useful books kept by a business entity. The points of distinction between the two are given below:

1. The journal is a book of original entry whereas the ledger is the main book of account.
2. In the journal business transactions are recorded as and when they occur i.e. date-wise. However posting from the journal is done periodically, may be weekly, fortnightly as per the convenience of the business.
3. The journal does not disclose the complete position of an account. On the other hand, the ledger indicates the position of each account debit wise or credit wise, as the case may be. In this way, the net position of each account is known immediately.
4. The record of transactions in the journal is in the form of journal entries whereas the record in the ledger is in the form of an account.

Utility of a Ledger:

The main utilities of a ledger are summarised as under:

- It provides complete information about all accounts in one book.
- It enables the ascertainment of the main items of revenues and expenses.
- It enables the ascertainment of the value of assets and liabilities.
- It facilitates the preparation of Final Accounts.

Format of a Ledger Account

A ledger account can be prepared in any one of the following two forms:

Form 1

Name of Account

Date	Particulars	Journal Folio	Amount	Date	Particulars	Journal Folio	Amount



Form 2

Name of Account

Date	Particulars	Journal Folio	Debit Amount (Rs.)	Credit Amount (Rs.)	Dr/Cr	Balance (Rs.)

3.5.2 Posting

Posting refers to the process of transferring debit and credit amounts from the Journal or subsidiary books to the respective heads of accounts in the ledger. Journal will have at a minimum of one debit and one credit for each transaction. The ledger will have either a debit or a credit for each account used in the Journal. Posting may be done daily, weekly fort nightly or monthly according to the convenience and requirements of the business, but care should be taken to complete it before the preparation of annual financial statements.

3.5.3 Procedure/Rules of Posting:

The following rules should be followed while posting business transactions to respective accounts in the ledger from the journal:

- 1) Enter the date and year of the transaction in the date column.
- 2) Open separate account in the ledger for each person, asset, revenue, liability, expense, income and loss appearing in the Journal.
- 3) The appropriate/relevant account debited in the Journal will be debited in the ledger, but the reference should be given of the other account which has been credited.
- 4) Similarly, the account credited in the Journal should be credited in the ledger, but the reference has to be given of the other account which has been debited in the Journal.



- 5) The debit posting should be prefixed by the word 'To' and credit posting should be prefixed by the word 'By'.
- 6) In the Journal Folio (J.F.) column the page number of the book of original entry (Journal) is entered. This is explained with the following example.

Illustration 8

Goods sold to Ravi for Rs. 1000 on credit on 1st April 2006. Record this transaction in the journal and the ledger.

Solution:

The journal entry will be:

Journal Entry

Date	Particulars	L.F.	Dr	Cr
2006 April 1	Ravi's Account Dr To Sales Account (Being Credit Sales of Goods to Ravi)		(Rs.) 1,000	(Rs.) 1,000

The above journal entry will appear in the ledger in two accounts as follows. On the debit side of Ravi's Account, we will write "To Sales Account" and on the credit side of Sales Account we will write "By Ravi's Account".

Dr

RAVI ACCOUNT

Cr

Date	Particulars	Journal Folio	Amount Rs.	Date	Particulars	Journal Folio	Amount Rs.
2006 April 1	To Sales Account		1000				

Dr

SALES ACCOUNT

Cr



Date	Particulars	Journal Folio	Amount Rs.	Date	Particulars	Journal Folio	Amount Rs.
				2006 April 1	By Ravi Account		1000

Posting of Compound Journal Entry

When a single entry is passed to record more than one transaction, it is known as a compound journal entry. However, it will be treated as several separate entries while posting. The following example will make the point clear:

Illustration 9

31 March 2006	Rs.
Purchased stationary	1,000
Paid salary	7,000
Paid wages	600
Paid rent	1,200

Pass the necessary journal entry and prepare ledger accounts.

Solution:

The Journal Entry will be:

Journal Entry

Date	Particulars		L.F.	Dr	Cr
2006 March 31	Stationary Account	Dr		(Rs.) 1000	(Rs.)
	Salary Account	Dr		7000	



	Wages Account	Dr	600	
	Rent Account	Dr	1200	
	To Cash Account			9800
	(Being Cash paid for the above)			

Then it will be posted as under:

Dr Stationary Account Cr

Date	Particulars	Journal Folio	Amount Rs.	Date	Particulars	Journal Folio	Amount Rs.
2006 March31	To Cash Account		1000				

Dr Salary Account Cr

Date	Particulars	Journal Folio	Amount Rs.	Date	Particulars	Journal Folio	Amount Rs.
2006 March31	To Cash Account		7000				

Dr Wages Account Cr

Date	Particulars	Journal Folio	Amount Rs.	Date	Particulars	Journal Folio	Amount Rs.
2006 March31	To Cash Account		600				



Dr				Rent Account				Cr			
Date	Particulars	Journal Folio	Amount Rs.	Date	Particulars	Journal Folio	Amount Rs.				
2006 March31	To Cash Account		1200								

Dr				Cash Account				Cr			
Date	Particulars	Journal Folio	Amount Rs.	Date	Particulars	Journal Folio	Amount Rs.				
				2006 March31	By Stationary		1000				
				March31	By Salary		7000				
				March31	By Rent		1200				
				March31	By Wages		600				

3.5.4 Balancing of an Account

After transferring the entries from Journal to the ledger, the next stage is to ascertain the net effect of all the transactions posted to relevant account. When the posting is completed, most of the accounts may have entries on both sides of the accounts i.e. debit entries and credits entries. The process of finding out the difference between the totals of the two sides of a Ledger account is known as balancing and the difference of the total debits and the total credits of accounts is known as balance.

If the total of the credit side is bigger than the total of the debit side, the difference is known as credit balance. In the reverse case, it is called debit balance.

Steps for Balancing Ledger Account



Ledger accounts may be balanced as and when it is required. The balances of various accounts are ascertained as under:

1. Make the total of both sides of an account in a worksheet.
2. Write down the higher amount on the side obtained e.g. if the total of the debit side is 6,000 and the credit side is 5,500, the amount Rs. 6,000 is first inserted in the total on the debit side.
3. Also write down the same total on the other side of the account i.e. the total of Rs. 6,000 is written against the total on the credit side also.
4. Find out the difference between the two sides of the account. In this example debit side is more than credit side; therefore, there is a debit balance of Rs. 500.
5. This debit balance of Rs. 500 is to be shown as "By Balance c/d" in the account on the credit side.
6. Finally, the amount of the closing balance should be brought down as the opening balance at the beginning of the next day. Remember that if the opening balance is not written on the next day, the balancing is incomplete.

Balancing of Different Account

Balancing is done either weekly, monthly, quarterly, biannually or annually, depending on the requirements of the business concern.

- **Personal Accounts** : Personal accounts are balanced regularly to know the amounts due to the persons or due from the persons. A debit balance of this account indicates that the person concerned is a debtor of the business concern and a credit balance indicates that he is a creditor of the business concern. If a personal account shows no balance at all, it means that the amount due to him or due from him is settled in full.
- **Real Accounts** : Real accounts are generally balanced at the end of the accounting year when final accounts are prepared and always shows debit balances. But, bank account may show either a debit balance or a credit balance.
- **Nominal Accounts** : In fact, nominal accounts are not balanced, as they are to be closed by transferring them to the final accounts i.e. Trading and Profit and Loss Account.

Illustration 10 :



Enter the following transactions in the Journal of Ramesh, and post them to the Ledger.

2006			Rs.
Jan.	1	Assets in hand : Cash Rs. 630; Cash at Bank Rs. 23,100; Stock of goods; Rs. 26,400; M. & Co., Rs. 6,750. Liabilities : Marathi & Co. Rs. 3,880; Ram & Sons Rs. 3000.	
Jan.	2	Received a cheque from M. & Co. in full settlement	6,650
Jan.	4	Sold goods to Chand & Sons on credit	1,440
		Carriage paid	35
		Sold goods to G. & Co. for cash	3,120
Jan.	5	Brought goods from Ram & Sons on credit	4,000
		Paid Marathi & Co. by cheque in full settlement	3,800
Jan.	6	Bought goods from Chatterjee	6,300
Jan.	13	Returned goods to Chatterjee (not being up to specifications)	300
Jan.	16	Goods used personally by proprietor	50
Jan.	17	Sold goods to M. & Co	5,000
Jan.	20	Cheque received from Chand & Sons	1,440
Jan.	22	Bank advises Chand & Sons cheque returned unpaid	
Jan.	24	Cash deposited with bank	2000
Jan.	27	Cheque sent to Chatterjee (Discount allowed Rs. 150)	5850
Jan.	31	Paid salaries	600
		Paid rent	300
		Drew for personal use out of bank	500

Solution



The Journal Entry will be:

Journal Entry

Date	Particulars		L.F.	Dr	Cr
2006				(Rs.)	(Rs.)
Jan 1	Cash A/c	Dr		630	
	Bank A/c	Dr		23100	
	Stock of goods A/c	Dr		26400	
	M & Co. A/c	Dr		6750	
	To Marathi & Co. A/c				3880
	To Ram & Sons				3000
	To Ramesh Capital A/c				50000
	(Being balances of various assets and liabilities brought forward)				
Jan 2	Bank A/c	Dr		6650	
	Discount Allowed A/c	Dr		100	
	To M. & Co.				6750
	(Being a cheque received from M. & Co. & Discount allowed)				
Jan 4	Chand & Sons A/c	Dr		1440	
	To Sales A/c				1440
	(Being goods sold on credit)				
Jan 4	Carriage Outwards A/c	Dr		35	
	To Cash A/c				35
	(Being the carriage paid)				
Jan 4	Cash A/c	Dr		3120	
	To Sales A/c				3120
	(Being goods sold for cash)				
Jan 5	Purchases A/c	Dr		4000	



	To Ram & Sons (Being goods purchased on credit)			4000
Jan 5	Marathi & Co. A/c Dr To Bank A/c To Discount A/c (Being payment made to Marathi & Co. in full settlement & discount received)		3880	3800 80
Jan 6	Purchases A/c Dr To Chatterjee (Being goods purchased on credit)		6300	6300
Jan 13	Chatterjee Dr To Returns Outwards A/c (Being goods returned to Chatterjee)		300	300
Jan 16	Drawings A/c Dr To Purchases A/c (Being goods withdrawn for personal use)		50	50
Jan 17	M. & Co. Dr To Sales A/c (Being goods sold on credit)		5000	5000
Jan 20	Bank A/c Dr To Chand & Sons A/c (Being a cheque received from Chand & Sons)		1440	1440
Jan 22	Chand & Sons A/c Dr To Bank A/c (Being the cheque of Chand & Sons dishonoured)		1440	1440
Jan 24	Bank A/c Dr		2000	



	To Cash A/c (Being cash deposited into bank)			2000
Jan 27	Chatterjee A/c To Bank A/c To Discount Received A/c (Being payment made to Chatterjee and discount received)	Dr	6000	5850 150
Jan 31	Salaries A/c To Cash A/c (Being salaries paid)	Dr	600	600
Jan 31	Rent A/c To Cash A/c (Being rent paid)	Dr	300	300
Jan 31	Drawings A/c To Bank A/c (Being cash withdrawn from bank for personal use)	Dr	500	500

LEDGER OF RAMESH

Dr				Capital Account				Cr			
Date	Particulars	Journal Folio	Amount Rs.	Date	Particulars	Journal Folio	Amount Rs.	Date	Particulars	Journal Folio	Amount Rs.
2006 Jan 31	To Balance c/d		50000	2006 Jan 1	By Balance b/f		50000				
			50000				50000				
				Feb 1	By Balance b/d		50000				

Dr				Stock of Goods Account				Cr			
Date	Particulars	Journal Folio	Amount Rs.	Date	Particulars	Journal Folio	Amount Rs.	Date	Particulars	Journal Folio	Amount Rs.
2006				2006							



Jan 1	To Balance b/f		26400	Jan 31	By Balance c/d		26400
			26400				26400
Feb 1	To Balance b/d		26400				

Dr				Cr			
Date	Particulars	Journal Folio	Amount Rs.	Date	Particulars	Journal Folio	Amount Rs.
2006 Jan 1	To Balance b/f		630	2006 Jan 4	By Carriage outward		35
Jan 4	To Sales A/c		3120	Jan 24	By Bank A/c		2000
				Jan 31	By Salaries A/c		600
				Jan 31	By Rent A/c		300
				Jan 31	By Balance c/d		815
			3750				3750
Feb 1	To Balance b/d		815				

Dr				Cr			
Date	Particulars	Journal Folio	Amount Rs.	Date	Particulars	Journal Folio	Amount Rs.
2006 Jan 1	To Balance b/f		23100	2006 Jan 5	By Marathi & Co.		3,800
Jan 2	To M. & Co.		6,650	Jan 22	By Chand & Sons		1,440
Jan 20	To Chand & Sons		1,440	Jan 27	By Chatterjee		5,850
Jan 24	To Cash A/c		2,000	Jan 31	By Drawings		500
				Jan 31	By Balance c/d		21,600



Feb 1	To Balance b/d		33190				33190
			21600				

Dr

M & Co.'s Account

Cr

Date	Particulars	Journal Folio	Amount Rs.	Date	Particulars	Journal Folio	Amount Rs.
2006 Jan 1	To Balance b/f		6750	2006 Jan 1	By Bank A/c		6650
Jan 17	To Sales A/c		5000	Jan 2	By Discount Allowed		100
				Jan 31	By Balance c/d		5000
			11750				11750
Feb 1	To Balance b/d		5000				

Dr

Marathi & Co.'s Account

Cr

Date	Particulars	Journal Folio	Amount Rs.	Date	Particulars	Journal Folio	Amount Rs.
2006 Jan 5	To Bank A/c		3800	2006 Jan 1	By Balance b/f		3880
Jan 5	Discount Receive		80				
			3880				3880

Dr

Ram & Son's Account

Cr

Date	Particulars	Journal Folio	Amount Rs.	Date	Particulars	Journal Folio	Amount Rs.
2006 Jan 31	To Balance c/d		7000	2006 Jan 1	By Balance b/f		3000
				Jan 5	By Purchase		4000
			7000				7000
				Feb 1	By Balance b/d		7000



Dr				Chand & Son's Account				Cr			
Date	Particulars	Journal Folio	Amount Rs.	Date	Particulars	Journal Folio	Amount Rs.				
2006				2006							
Jan 4	To Sales A/c		1440	Jan 20	By Bank A/c		1440				
Jan 22	To Bank A/c		1440	Jan 31	By Balance c/d		1440				
			2840				2840				
Feb 1	To Balance b/d		1440								

Dr				Chatterjee's Account				Cr			
Date	Particulars	Journal Folio	Amount Rs.	Date	Particulars	Journal Folio	Amount Rs.				
2006				2006							
Jan 13	Return outward		300	Jan 6	By Purchase A/c		6300				
Jan 27	Discount Receive		150								
Jan 27	To Bank A/c		5850								
			6300				6300				

Dr				Purchase Account				Cr			
Date	Particulars	Journal Folio	Amount Rs.	Date	Particulars	Journal Folio	Amount Rs.				
2006				2006							
Jan 5	To Ram & Son		4000	Jan 16	By Drawing A/c		50				
Jan 6	To Chatterjee A/c		6300	Jan 31	By Balance c/d		10250				
			10300				10300				
Feb 1	To Balance b/d		10250								

Dr				Sales Account				Cr			
Date	Particulars	Journal Folio	Amount Rs.	Date	Particulars	Journal Folio	Amount Rs.				
2006				2006							



Jan 31	To Balance c/d		9560	Jan 4	By Chand & Son's		1440
				Jan 4	By Cash A/c		3120
				Jan 17	By M. & Co.'s		5000
			9560				9560
				Feb 1	By Balance b/d		9560

Dr Discount Allowed Account				Cr			
Date	Particulars	Journal Folio	Amount Rs.	Date	Particulars	Journal Folio	Amount Rs.
2006 Jan 2	To M & Co.'s		100	2006 Jan 31	By Balance c/d		100
			100				100
Feb 1	To Balance b/d		100				

Dr Carriage Outward Account				Cr			
Date	Particulars	Journal Folio	Amount Rs.	Date	Particulars	Journal Folio	Amount Rs.
2006 Jan 4	To Cash A/c		35	2006 Jan 31	By Balance c/d		35
			35				35
Feb 1	To Balance b/d		35				

Dr Discount Received Account				Cr			
Date	Particulars	Journal Folio	Amount Rs.	Date	Particulars	Journal Folio	Amount Rs.
2006 Jan 31	To Balance c/d		230	2006 Jan 5	By Marathi & Co.		80
				Jan 27	By Chatterjee's		150
			230				230
				Feb 1	By Balance b/d		230



Dr				Return Outward Account				Cr	
Date	Particulars	Journal Folio	Amount Rs.	Date	Particulars	Journal Folio	Amount Rs.		
2006 Jan 31	To Balance c/d		300	2006 Jan 13	By Chatterjee's		300		
			300				300		
				Feb 1	By Balance b/d		300		

Dr				Drawing Account				Cr	
Date	Particulars	Journal Folio	Amount Rs.	Date	Particulars	Journal Folio	Amount Rs.		
2006 Jan 16	To Purchase		50	2006 Jan 31	By Balance c/d		550		
Jan 31	To Bank		500				550		
			550						
Feb 1	To Balance b/d		550						

Dr				Salary Account				Cr	
Date	Particulars	Journal Folio	Amount Rs.	Date	Particulars	Journal Folio	Amount Rs.		
2006 Jan 31	To Cash A/c		600	2006 Jan 31	By Balance c/d		600		
			600				600		
Feb 1	To Balance b/d		600						

Dr				Rent Account				Cr	
Date	Particulars	Journal Folio	Amount Rs.	Date	Particulars	Journal Folio	Amount Rs.		
2006 Jan 31	To Cash A/c		300	2006 Jan 31	By Balance c/d		300		
			300				300		
Feb 1	To Balance b/d		300						



3.6 CHECK YOUR PROGRESS

Fill in the Blanks:

1. Accounting is a method of collecting, recording, classifying, summarizing, presenting and interpreting financial data of an
2. is the first book of original entry in which all transactions are recorded event-wise and date-wise.
3. When a single entry is passed to record more than one transaction, it is known as a journal entry.
4. refers to the process of transferring debit and credit amounts from the Journal or subsidiary books to the respective heads of accounts in the ledger.
5. is a principal book of accounts of the enterprise.

3.7 SUMMARY

Accounting as an information system is the process of identifying, measuring and communicating the economic information of an organisation to its users who need the information for making decisions. An accounting process is a complete sequence with the recording of the transactions and ending with the preparation of the final accounts. Journal is concerned with the recording of financial transactions in an orderly manner, soon after their occurrence. The function of systematic analysis of the recorded data to accumulate the transactions of similar type at one place is performed by maintaining the ledger in which different accounts are opened to which transactions are posted.

3.8 KEYWORDS

Accounting equation: Accounting equation is an accounting formula expressing equivalence of the two expressions of assets and liabilities.

Journal: Journal is a tabular record in which business transactions are recorded in a chronological order.

Journal entry: The record of the transaction in the journal is called a journal entry.



Ledger: Ledger is the principal book of accounts where similar transactions relating to a particular person or thing are recorded.

Posting: It is the process of transferring debit and credit amounts from the journal or subsidiary books to the respective heads of accounts in the ledger.

Compound journal entry: A journal entry which includes more than one debit or more than one credit is called compound journal entry.

3.9 SELF-ASSESSMENT TEST

1. What is meant by Journal ? Enumerate the steps in journalising.
2. Define ledger. Explain the procedure for balancing a ledger account.
3. What is meant by posting? How is posting made from the journal in the ledger? Explain with suitable examples.
4. Pass necessary Journal entries in the books of Narender for the month of March, 2006:
 - 1) An old machinery appearing in books exchanged for a new machinery of Rs. 5,000.
 - 2) Issued a cheque for Rs. 1,000 in favour of landlord for a rent for the month of March.
 - 3) Paid electricity bill of Rs. 450 by cheque.
 - 4) The goods destroyed by theft Rs. 3,000.
 - 5) Paid wages for the installation of machinery Rs. 5,000.
 - 6) Accrued interest Rs. 1100.
 - 7) Goods worth Rs. 4,000 given away by way of charity.
 - 8) Goods taken by Proprietor worth Rs. 10,000 for personal use.
5. From the following transactions of Mr. Kamal Mahajan write up journal entries and post them into ledger.

Date	Transaction
2006	
Jan 1	Assets-Cash in hand Rs. 2,000, Cash at bank Rs. 5,000, Stock of goods Rs. 4,000, Machinery Rs. 9000, Furniture Rs. 2,000, Sham owes Rs. 500, Ram owes Rs. 3,500. Liabilities - Loan Rs. 4,000; sum owing to Y Rs. 3,000.



Jan 2	Sold goods to Pawan Rs. 3,000.
Jan 5	Received Rs. 2,950 from Pawan in full settlement of his accounts.
Jan 6	Payment made to Y Rs. 1,975 by cheque, he allowed discount of Rs. 25.
Jan 8	Old furniture sold for Rs. 200.
Jan 10	Ram pays Rs. 3,400 by cheque and discount allowed to him Rs. 100, cheque deposited in bank.
Jan 13	Paid for repairs to machinery Rs. 250
Jan 15	Bank intimates the cheque of Ram has been returned dishonoured.
Jan 18	Paid municipal taxes Rs. 200.
Jan 22	Bought goods from Sita & Co. Rs. 1,000
Jan 25	Goods worth Rs. 600 given away as charity.
Jan 31	Returned goods to Sita & Co. Rs. 1,000
Jan 31	An amount which was written off as bad debts in 1998 recovered Rs. 1,000.

6. Pass necessary journal entries and post them in the appropriate Ledger Accounts of Kamal for the month of January 2006:

Date	Transaction
2006	
Jan 1	Started business with Rs. 2,00,000 in the bank and Rs. 40,000 cash. Bought shop fitting Rs. 40,000 and a van Rs. 60,000, both paid by cheque.
Jan 2	Paid rent by cheque Rs. 5,000.
Jan 3	Bought goods for resale on credit from Zakir & Co. Rs. 50,000.
Jan 5	Cash sales Rs. 5,000.



Jan 8	Paid wages of assistant in cash Rs. 1,000.
Jan 10	Paid insurance by cheque Rs. 500
Jan 12	Cash sales Rs. 8,000
Jan 15	Goods returned to Zakir & Co. Rs. 6,000.
Jan 17	Paid Zakir & Co. Rs. 30,000 by cheque.
Jan 24	Bought stationery and paid in cash Rs. 500.
Jan 25	Cash sales Rs. 15,000.
Jan 27	Paid Rao & Co. Rs. 14,000 by cheque.
Jan 31	Paid Rs. 20,000 into the bank.

3.10 ANSWER TO CHECK YOUR PROGRESS

Answer to Fill in the Blanks:

1. Accounting is a method of collecting, recording, classifying, summarizing, presenting and interpreting financial data of an **economic activity**.
2. **Journal** is the first book of original entry in which all transactions are recorded event-wise and date-wise.
3. When a single entry is passed to record more than one transaction, it is known as a **compound journal entry**.
4. **Posting** refers to the process of transferring debit and credit amounts from the Journal or subsidiary books to the respective heads of accounts in the ledger.
5. **Ledger** is a principal book of accounts of the enterprise.

3.11 REFERENCES/SUGGESTED READINGS

1. M.C. Sukhla and T.S. Grewal, Advanced Accounts
2. R.L. Gupta, Advanced Accountancy
3. S.N. Maheshwari, Advanced Accountancy



Subject: Accounting for Managers	
Course Code: MBA 104	Author: Dr M. C. Garg
Lesson No. 4	Vetter:

TRIAL BALANCE

Structure

- 4.0 Learning Objective
- 4.1 Introduction
- 4.2 Objectives of Preparing Trial Balance
- 4.3 Limitations of Trial Balance
- 4.4 Methods of Preparation of Trial Balance
- 4.5 Accounting Errors
- 4.6 Steps for Location of Errors
- 4.7 Check Your Progress
- 4.8 Summary
- 4.9 Keywords
- 4.10 Self-Assessment Test
- 4.11 Answer to Check Your Progress
- 4.12 References/Suggested Readings

4.0 LEARNING OBJECTIVE

After reading this lesson, you should be able to:

- Define Trial Balance and explain the methods of preparation of Trial Balance.
- Define accounting errors and steps for location of accounting errors.

4.1 INTRODUCTION

A Trial Balance is a two-column schedule listing the titles and balances of all the accounts in the order in which they appear in the ledger. The debit balances are listed in the left-hand column and the credit balances in the right-hand column. In the case of the General Ledger, the totals of the two columns should agree.



We, now, know the fundamental principle of double entry system of accounting where for every debit, there must be a corresponding credit. Therefore, for every debit or a series of debits given to one or several accounts, there is a corresponding credit or a series of credits of an equal amount given to some other account or accounts and vice-versa. Hence, according to this principle, the sum total of debit amounts must equal the credit amounts of the ledger at any date. If the various accounts in the ledger are balanced, then the total of all debit balances must be equal to the total of all credit balances. If the same is not true then the books of accounts are arithmetically inaccurate. It is, therefore, at the end of the financial year or at any other time, the balances of all the ledger accounts are extracted and are recorded in a statement known as Trial Balance and finally totalled up to see whether the total of debit balances is equal to the total of credit balances. A Trial Balance may thus be defined as a statement of debit and credit totals or balances extracted from the various accounts in the ledger books with a view to test the arithmetical accuracy of the books.

The agreement of the Trial Balance reveals that both the aspects of each transaction have been recorded and that the books are arithmetically accurate. If both the sides of Trial Balance do not agree to each other, it shows that there are some errors, which must be detected and rectified if the correct final accounts are to be prepared. Thus, Trial Balance forms a connecting link between the ledger accounts and the final accounts.

4.2 Objectives of preparing trial balance

The following are the main objectives of preparing the trial balance:

- 1) To check the arithmetical accuracy of books of accounts:** According to the principle of double entry system of book-keeping, every business transaction has two aspects, debit and credit. So, the agreement of the trial balance is a proof of the arithmetical accuracy of the books of accounts. However, it is not a conclusive evidence of their accuracy as there may be certain errors, which the Trial Balance may not be able to disclose.
- 2) Helpful in preparing final accounts:** The trial balance records the balances of all the ledger accounts at one place which helps in the preparation of final accounts, i.e. Trading and Profit and Loss Account and Balance Sheet. But, unless the trial balance agrees, the final accounts cannot be prepared. So, if the trial balance does not agree, errors are located and necessary corrections are made at the earliest, so that there may not be unnecessary delay in the preparation of the final accounts.



- 3) **To serve as an aid to the management:** By comparing the trial balances of different years changes in figures of certain important items such as purchases, sales, debtors etc. are ascertained and their analysis is made for taking managerial decisions. So, it serves as an aid to the management.

4.3 Limitations of Trial Balance

The following are the main limitations of the Trial Balance:

- (i) Trial Balance can be prepared only in those concerns where double entry system of accounting is adopted.
- (ii) Though trial balance gives arithmetic accuracy of the books of accounts but there are certain errors, which are not disclosed by the trial balance. That is why it is said that trial balance is not a conclusive proof of the accuracy of the books of accounts.
- (iii) If trial balance is not prepared correctly then the final accounts prepared will not reflect the true and fair view of the state of affairs of the business. Whatever conclusions and decisions are made by the various groups of persons will not be correct and will mislead such persons.

4.4 Methods of preparation of trial balance

A trial balance can be prepared by the following two methods:

1. **Total method:** In this method, the debit and credit totals of each account are shown in the two amount columns (one for the debit total and the other for the credit total).
2. **Balance Method:** In this method, the difference of each amount is extracted. If debit side of an account is bigger in amount than the credit side, the difference is put in the debit column of the Trial Balance and if the credit side is bigger, the difference is written in the credit column of the Trial Balance.

A specimen of the Trial Balance is given as follows:

Trail Balance of as on

Serial No.	Name of the Account	Dr. Balance Rs.	Cr. Balance Rs.



Of the two methods of the trial balance preparation, the second is usually used in practice because it facilitates the preparation of the final accounts.

Illustration 4.1: The following Trial Balance has been prepared wrongly. You are asked to prepare the Trial Balance correctly.

Name of Accounts	Debit Balance (Rs.)	Credit Balance (Rs.)
Cash in hand		7,000
Purchases returns	8,000	
Wages	8,000	
Establishment expenses	12,000	
Sales returns		7,000
Capital	22,000	
Carriage outwards		2,000
Discount received	1,200	
Commission earned	800	
Machinery		20,000
Stock		10,000
Debtors	8,000	
Creditors		12,000
Sales		44,000
Purchases	1,28,000	
Bank overdraft		1,14,000
Manufacturing expenses	14,000	
Loan from Ashok	14,000	
Carriage inward	1,000	
Interest on investments		1,000
Total	2,17,000	2,17,000



Solution:

Correct Trial Balance as on

Name of Accounts	Debit Balance (Rs.)	Credit Balance (Rs.)
Cash in hand	7,000	
Purchases returns		8,000
Wages	8,000	
Establishment expenses	12,000	
Sales returns	7,000	
Capital		22,000
Carriage outwards	2,000	
Discount received		1,200
Commission earned		800
Machinery	20,000	
Stock	10,000	
Debtors	8,000	
Creditors		12,000
Sales		44,000
Purchases	1,28,000	
Bank overdraft		1,14,000
Manufacturing expenses	14,000	
Loan from Ashok		14,000
Carriage inward	1,000	
Interest on investments		1,000
Total	2,17,000	2,17,000

4.5 Accounting errors

If the two sides of a trial balance agree it is a prima facie evidence of the arithmetical accuracy of the entries made in the Ledger. But even if the trial balance agrees, it does not necessarily mean that the accounting records are free from all errors, because there are certain types of errors, which



are not revealed by a Trial Balance. Therefore a Trial Balance should not be regarded as a conclusive proof of accuracy of accounts.

In accounting an error is a mistake committed by the book-keeper (Accountant/Accounts Clerk) while recording or maintaining the books of accounts. An error is an innocent and non-deliberate act or lapse on the part of the persons involved in recording business transactions. It may occur while the transactions are originally recorded in the books of original entries i.e. Journal, Purchase Book, Sales Book, Purchase Return Book, Sales Return Book, Bills Receivable Book, Bills Payable Book and Cash Book, or while the ledger accounts are posted or balanced or even when the trial balance is prepared. These errors may affect the arithmetical accuracy of the trial balance or may defeat the very purpose of accounting. These errors can be classified as follows:

1. Clerical errors
2. Errors of Principle

A brief description of the above errors is given below:

a) Clerical Errors:

Clerical errors are those errors, which are committed by the clerical staff during the course of recording business transactions in the books of accounts. These errors are:

1. Errors of omission
2. Errors of commission
3. Compensating errors
4. Errors of duplication

Errors of Omission:

When business transaction is either completely or partly omitted to be recorded in the books of prime entry it is called an 'error of omission'. When a business transaction is omitted completely, it is called a 'complete error of omission', and when a business transaction is partly omitted, it is called a "partial error of omission". A complete error of omission does not affect the agreement of trial balance whereas a partial error of omission may or may not affect the agreement of trial balance. Omission of recording a business transaction either completely or partly, omission of ledger posting, omission of casting and balancing of an account and omission of carrying forward are some examples of the errors of omission.



An example of a complete error of omission is goods purchased or sold may not be recorded in the purchase book or sales book at all. This error will not affect the trial balance. An example of a partial error of omission is goods purchased for Rs. 5,500 recorded in Purchase Book for Rs. 550. This is a partial error of omission. This error will also not affect the agreement of trial balance. Another example of a partial error of omission is that if goods purchased for Rs. 5,500 is recorded in the Purchase Book for Rs. 5,500 but the personal account of the supplier is not posted with any amount on the credit side in the ledger, it is a partial error of omission and it will affect the agreement of trial balance.

Error of Commission: Such errors are generally committed by the clerical staff due to their negligence during the course of recording business transactions in the books of accounts. Though, the rules of debit and credit are followed properly yet some mistakes are committed. These mistakes may be due to wrong posting of a business transaction either to a wrong account or on the wrong side of an account, or due to wrong casting (addition) i.e. over-casting or under-casting or due to wrong balancing of the accounts in the ledger.

Compensating Errors: Compensating errors are those errors, which cancel or compensate themselves. These errors arise when an error is either compensated or counter-balanced by another error or errors so that of the other on the debit or credit side neutralizes the adverse effect of one on credit side or debit side. For example, over-posting on one side may be compensated by under posting of an equal amount on the same side of the same account or over posting of one side of an account may be compensated by an equal overprinting on the opposite side of some other account. But these errors do not affect the trial balance.

Errors of Duplication: When a business transaction is recorded twice in the prime books and posted in the Ledger in the respective accounts twice, the error is known as the 'Error of Duplication'. These errors do not affect the trial balance.

b) Errors of Principle:

When a business transaction is recorded in the books of original entries by violating the basic/fundamental principles of accountancy it is called an error of principle. Some examples of these errors are:

- 1) When revenue expenditure is treated as capital expenditure or vice-versa, e.g. building purchased is debited to the purchase account instead of the building account.



- 2) Revenue expenses debited to the personal account instead of the expenses account, e.g. salary paid to Mr. Ashok, a clerk, for the month of June, debited to Ashok's account instead of salary account. These errors do not affect the Trial Balance.

The Disagreement of the Trial Balance will Disclose the following Errors:

- 1) An item omitted to be posted from a subsidiary book into the Ledger i.e. a purchase of Rs. 6,000 from Satpal omitted to be credited to his account. As a result of this error, the figure of sundry creditors to be shown in the Trial Balance will reduce by Rs. 6,000 and the total of the credit side of the Trial Balance will be Rs. 6,000 less as compared to the debit side of the Trial Balance.
- 2) Posting of wrong amount to a ledger account i.e. credit sale of Rs. 12,000 to Nisha wrongly posted to her account as Rs. 1,200. The effect of this error will be that the figure of sundry debtors will reduce by Rs. 10,800 and the total of the debit side of the Trial Balance will be Rs. 10,800 less than the total of the credit side of the Trial Balance.
- 3) Posting an amount to the wrong side of the ledger account i.e. Rs. 150 discount allowed to a customer wrongly posted to the credit instead of the debit of the Discount Account. As a result of this error, the credit side of the Trial Balance will exceed by Rs. 300 (double the amount of the error).
- 4) Wrong additions or balancing of ledger account, i.e. while balancing Capital Account at the end of the financial year, credit balance of Rs. 1,89,000 wrongly taken as Rs. 1,79,000. As a result of this error, the credit total of the Trial Balance will be short by Rs. 10,000.
- 5) Wrong totalling of subsidiary books, i.e. Sales Book is overcast by Rs. 1,000. As a result of this error, Credit side of the Trial Balance will be excess by Rs. 1,000 because Sales Account will appear at a higher figure on the credit side of the Trial Balance.
- 6) An item in the subsidiary book posted twice to a ledger account, i.e. a payment of Rs. 9,000 to a creditors posted twice to his account.
- 7) Omission of a balance of an account in the Trial Balance, i.e. cash and bank balances may have been omitted to be included in the Trial Balance.
- 8) Balance of some account wrongly entered in the Trial Balance i.e. a balance of Rs. 614 in Stationery Account wrongly entered as Rs. 416 in the Trial Balance.



- 9) Balance of some account written to the wrong side of the Trial Balance, i.e., balance of Commission Earned Account wrongly shown to the debit side instead of the credit side of the Trial Balance.
- 10) An error in the totalling of the Trial Balance will bring the disagreement of the Trial Balance.

Illustration 4.2:

Ramniwas, a book-keeper, taking out a trial balance as on 31st March 2005, found that its debit and credit columns did not agree. He proceeded to check the entries and discovered the following errors:

1. A credit sale of Rs. 1,000 to Ajay had been correctly entered in the Sales Book but Ajay's Account had been debited with Rs. 100 only.
2. The total of the Bills Payable Book Rs. 5,000 had been posted to the credit of Bills Receivable Account.
3. Rs. 2,500 paid to Ram had been wrongly posted to Shyam.
4. Rs. 100 owing by a customer had been omitted from the list of debtors.
5. The discount column of the Cash Book representing discount allowed to customer has been over-added by Rs. 10.
6. Goods worth Rs. 100 taken by the proprietor omitted to be recorded in the books.
7. Depreciation on furniture Rs. 100, had not been posted to Depreciation Account.
8. The total of Sales Book had been added Rs. 1,000 short.

Which of the above errors caused the totals of the Trial Balance to disagree and by how much did the totals differ?

Solution:

The effect of the above noted errors on the Trial Balance will be as follows:

1. Ajay's account has been given fewer debits for Rs. 900, so the debit side of the Trial Balance would be short by s. 900.
2. This error will not affect the agreement of the Trial Balance because the posting of the Bills Payable Book has been made to the correct side but in the wrong Account. The credit given to Bills Receivable Account instead of Bills Payable Account does not affect the agreement of the Trial Balance.



3. This error will not affect the agreement of the Trial Balance because the amount paid has been posted to right side through to a wrong account.
4. Sundry debtors have been shown in the Trial Balance with a less amount of Rs. 100, so debit side of the Trial Balance is short by Rs. 100.
5. Discount Account has been given an excess debit of Rs. 10 so debit side of the Trial Balance exceeds by Rs. 10.
6. This error will have no affect on the agreement of the Trial Balance because the dual aspect of the entry has been omitted i.e., neither of the two accounts involved in this transaction has been given debit or credit.
7. Depreciation of furniture has not been debited to Depreciation Account, so debit side of the Trial Balance will be short by Rs. 100.
8. Sales Account has been given less credit for Rs. 1,000, so credit side of the Trial Balance would be short by Rs. 1,000.

The combined affect of all the errors is that the credit side of the Trial Balance would exceed the debit side by Rs. 90.

4.6 Steps for location of errors

Whenever a Trial Balance disagrees, the following steps should be taken to locate the causes of the difference:

1. Recheck the total of the Trial Balance and ascertain the exact amount difference in the Trial Balance.
2. Divide the difference of the Trial Balance by two and find out if there is any balance of the same amount in the Trial Balance. It may be that such a balance might have been recorded on the wrong side of the Trial Balance, thus causing a difference of double the amount.
3. If the mistake is not located by the above steps, the difference in the Trial Balance should be divided by 9. If the difference is evenly divisible by 9, the error may be due to transposition or trans placement of figures. A transposition occurs when 57 is written as 75, 197 as 791 and so on. A trans placement takes place when the digits of the numbers are moved to the left or right e.g. when Rs. 5,694 is written as Rs. 56.94 or s. 569.40. If there is a transposition or trans placement of figures, the search can be narrowed down to numbers where these errors might have been made.



4. See that the balances of all accounts including cash and bank balances have been included in the Trial Balance.
5. See that the opening balances have been correctly brought forward in the current year's books.
6. If the difference is of a large amount, compare the Trial Balance of the current year with that of the previous year and see that the figures under similar head of account are approximately the same as those of the previous year and whether their balances fall on the same side of the Trial Balance. If the difference between the previous year figures and the current year figures is large one, establish the causes of difference.
7. If the above listed steps fail to detect the errors, check your work as follows:
 - Check the totals of the subsidiary books paying particular attention to carry forwards.
 - Check the posting made from the Journal or subsidiary books in the ledger.
 - Re-check the balances extracted from ledger.
 - Re-cast the list of balances.

If all the efforts fail to locate the errors, all the books of primary entry (subsidiary books) must be cast, and, if necessary, the postings to the ledger should be re-checked.

4.7 CHECK YOUR PROGRESS

Fill in the Blanks:

1. forms a connecting link between the ledger accounts and the final accounts.
2. A Trial Balance should not be regarded as a conclusive proof of of accounts.
3. When business transaction is either completely or partly omitted to be recorded in the books of prime entry it is called an
4. When a business transaction is recorded in the books of original entries by violating the basic/fundamental principles of accountancy it is called an
5. When a business transaction is recorded twice in the prime books and posted in the Ledger in the respective accounts twice, the error is known as the '.....'.

4.8 Summary

As air, food and water are indispensable to life, Trial Balance is indispensable to accounting. It serves as a lubricant for the smooth movement and completion of the accounting cycle. Moreover, it forms a useful connecting link between ledger accounts and final accounts. The agreement of a Trial Balance is not a conclusive proof as to the absolute accuracy of the books. It only gives an



indication of the arithmetical accuracy. Even if both the sides of trial Balance agree to each other yet there may be some errors in the books of accounts.

4.9 Keywords

Trial Balance: A Trial Balance is a statement of debit and credit balances extracted from all the ledgers with a view to ascertain arithmetical accuracy of posting of all transactions into the respective ledgers.

Clerical Errors: Those errors which are committed by the clerical staff during the course of recording business transactions in the books of accounts is known as clerical errors.

Compensating Errors: Compensating errors are those errors which cancel or compensate themselves.

Errors of Principle: When a transaction is recorded in the books of accounts by violating the basic principle of accounting, it is called an error of principle.

4.10 Self-Assessment TEST

1. What do you mean by a Trial Balance? Discuss the objectives and methods of preparing a Trial Balance.
2. Is the agreement of Trial Balance a conclusive proof of the accuracy of books of accounts? If not, what are the errors, which remain undetected by the Trial Balance?
3. In case of disagreement of the Trial Balance in what order you would follow to locate the errors?
4. The cashbook of Mr. Sheru shows Rs. 8,364 as bank balance on 31st December 2005. But you find that this does not agree with the balance as shown by passbook. On scrutiny you find the following discrepancies:
 - (a) On 15th Dec. 2005 the payment side of cashbook was undercast by Rs. 100.
 - (b) A cheque for Rs. 131 issued on 25th December 2005 was taken in cash column.
 - (c) One deposit of Rs. 150 was recorded in cash book as if there is not bank column therein.
 - (d) On 18th Dec. 2005 the debit balance of Rs. 1,526 as on the previous day was brought forward as credit balance.
 - (e) Of the total cheques amounting to Rs. 11,514 drawn in last week of December 2005, cheques aggregating Rs. 7,815 encashed in December.



(f) Dividends of Rs. 250 collected by bank and subscription of Rs. 200 paid by it were not recorded in cash book.

(g) One outgoing cheque of Rs. 350 was recorded twice in the cash book.

5. From the following Trial Balance (containing obvious errors) prepare a correct Trial Balance:

	Dr. (Rs.)	Cr. (Rs.)
Purchases	60,000	
Reverse fund	20,000	
Sales		1,00,000
Purchase returns	1,000	
Sales returns		2,000
Opening stock	30,000	
Closing stock		40,000
Expenses		20,000
Outstanding expenses	2,000	
Bank balance	5,000	
Assets	50,000	
Debtors		80,000
Creditors		30,000
Capital	94,000	
Suspense account (difference in books)	10,000	
	2,72,000	2,72,000

6. The following balances appear in various accounts on 31.12.2005. You are asked to prepare a Trial Balance:

	Rs.		Rs.
Capital	20,000	Apprentice premium	300
Machinery	8,000	Insurance premium	200
Building	9,000	Interest on investment	600
Rates and taxes	500	Investments	6,000
Debtors	6,000	Bank charges	100



Stationery	900	Printing	300
Bills payable	1,950	Creditors	3,000
Loan from Raju and Co.	8,000	Office expenses	650
Opening stock	500	Wages	1,200
Bank	1,500	Sales	9,000
Cash	500	Purchases	3,500
Drawings	2,000	Furniture	2,000

4.11 Answer to Check YOUR PROGRESS

Answer to Fill in the Blanks:

1. **Trial Balance** forms a connecting link between the ledger accounts and the final accounts.
2. A Trial Balance should not be regarded as a conclusive proof of **accuracy** of accounts.
3. When business transaction is either completely or partly omitted to be recorded in the books of prime entry it is called an **error of omission**.
4. When a business transaction is recorded in the books of original entries by violating the basic/fundamental principles of accountancy it is called an **error of principle**.
5. When a business transaction is recorded twice in the prime books and posted in the Ledger in the respective accounts twice, the error is known as the '**Error of Duplication**'.

4.12 References/Suggested readings

1. Aggarwal and Jain, Advanced Financial Accounting.
2. S.N. Maheshwari, Introduction to Accounting.
3. R.L. Gupta, Advanced Accountancy.
4. Shukla and Grewal, Advanced Accounts.
5. Tulsian, Financial Accounting.



Subject: Accounting for Managers	
Course Code: MBA 104	Author: Dr M. C. Garg
Lesson No. 5	Vetter:

DEPRECIATION ACCOUNTING AND POLICY

STRUCTURE

- 5.0 Learning Objective
- 5.1 Introduction
- 5.2 Depreciation, Depletion and Amortization
- 5.3 Causes of Depreciation
- 5.4 Need for Providing Depreciation
- 5.5 Basic Elements of Depreciation
- 5.6 Methods of Calculating Depreciation
- 5.7 Methods of Recording Depreciation
- 5.8 Sale of an Asset
- 5.9 Change of Depreciation Method
- 5.10 Check Your Progress
- 5.11 Summary
- 5.12 Keywords
- 5.13 Self-Assessment Test
- 5.14 Answer to Check Your Progress
- 5.15 References/Suggested Readings

5.0 LEARNING OBJECTIVE

After reading this lesson, you should be able to:

- Define depreciation and describe the causes of depreciation.
- Discuss the various methods of charging depreciation.
- Explain the accounting treatment of depreciation

5.1 INTRODUCTION



Generally, the term depreciation is used to denote decrease in value but in accounting, this term is used to denote decrease in the book value of fixed asset. Depreciation is the permanent and continuous decrease in the book value of a fixed asset due to use, effluxion of time, obsolescence, expiration of legal rights or any other cause. According to the Institute of Chartered Accountant of England Wales, “Depreciation represents that part of the cost of a fixed asset to its owner which is not recoverable when the asset is finally out of use by him. Provision against this loss of capital is an integral cost of conducting the business during the effective commercial life of the asset and is not dependent on the amount of profit earned”. Depreciation is not the result of fluctuations in the value of fixed assets since, the fluctuation is concerned with the market price of the fixed asset whereas the depreciation is concerned with the historical cost. An analysis of the definition given above highlights the characteristics of depreciation as follows:

1. It is related to fixed assets only.
2. It is a fall in the book value of an asset.
3. The fall in the book value of an asset is due to the use of the asset in business operations, effluxion of time, obsolescence, expiration of legal rights or any other cause.
4. It is a permanent decrease in the book value of an asset.
5. It is a continuous decrease in the book value of an asset.

5.2 DEPRECIATION, DEPLETION AND AMORTISATION

The terms depreciation, depletion and amortisation are used often interchangeably. However, these different terms have been developed in accounting usage for describing this process for different types of assets. These terms have been described as follows:

Depreciation:

Depreciation is concerned with charging the cost of man-made fixed assets to operation (and not with determination of asset value for the balance sheet). In other words, the term 'depreciation' is used when expired utility of physical asset (building, machinery, or equipment) is to be recorded.

Depletion

This term is applied to the process of removing an available but irreplaceable resource such as extracting coal from a coal miner or oil out of an oil well. Depletion differs from depreciation in that the former implies removal of a natural resource, while the latter implies a reduction in the service capacity of an asset.



Amortisation

The process of writing off intangible assets is termed as amortisation. The intangible assets like patents, copyrights, leaseholds and goodwill are recorded at cost in the books of account. Many of these assets have a limited useful life and are, therefore, written off.

Obsolescence

It refers to the decline in the useful life of an asset because of factors like (i) technological advancements, (ii) changes in the market demand of the product, (iii) legal or other restrictions, or (iv) improvement in production process.

Meaning of Depreciation Accounting

According to the American Institute of Certified Public Accountants (AICPA), “Depreciation Accounting is a system of accounting which aims to distribute cost or the basic value of tangible capital assets less salvage (if any), over the estimated useful life of the unit (which may be group of assets) in a systematic and rational manner. It is a process of allocation and not of valuation.

5.3 CAUSES OF DEPRECIATION

The main causes of depreciation include the following :

- (a) **Physical wear and tear:** When the fixed assets are put to use, the value of such assets may decrease. Such decrease in the value of assets is said to be due to physical wear and tear.
- (b) **With the passage of time:** When the assets are exposed to the forces of nature like whether, winds, rains, etc., the value of such assets may decrease even if they are not put to any use.
- (c) **Changes in economic environment:** The value of an asset may decrease due to decrease in the demand of the asset. The demand of the asset may decrease due to technological changes, changes in the habits of consumers etc.
- (d) **Expiration of legal rights:** When the use of an asset (e.g., patents, leases) is governed by the time bound arrangement, the value of such assets may decrease with the passage of time.

5.4 NEED FOR PROVIDING DEPRECIATION

The need for providing depreciation in accounting records arises due to any one or more of the following objectives to be achieved:

- (a) **To ascertain true results of operations:** For proper matching of costs with revenues, it is necessary to charge the depreciation (cost) against income (revenue) in each accounting



period. Unless the depreciation is charged against income, the result of operations would stand overstated. As a result the Income Statement would fail to present a true and fair view of the result of operations of an accounting entity.

- (b) **To present true and fair view of the financial position:** For presenting a true and fair view of the financial position, it is necessary to charge the depreciation. If the depreciation is not charged, the unexpired cost of the asset concerned would be overstated. As a result, the Position Statement (i.e. the Balance Sheet) would not present a true and fair view of the financial position of an accounting entity.
- (c) **To ascertain the true cost of production:** For ascertaining the cost of production, it is necessary to charge depreciation as an item of cost of production. If the depreciation on fixed assets is not charged, the cost records, would not present a true and fair view of the cost of production.
- (d) **To comply with legal requirements:** In case of companies, it is compulsory to charge depreciation on fixed assets before it declares dividend [Sec. 205(1) of the Companies Act, 1956].
- (e) **To accumulate funds for replacement of assets :** A portion of profits is set aside in the form of depreciation and accumulated each year to provide a definite amount at a certain future date for the specific purpose of replacement of the asset at the end of its useful life.

5.5 BASIC ELEMENTS OF DEPRECIATION

In order to assess depreciation amount to be charged in respect of an asset in an accounting period the following three important factors should be consider:

1. **Cost of the asset:** The knowledge about the cost of the asset is very essential for determining the amount of depreciation to be charged to the profit and loss account. The cost of the asset includes the invoice price of the asset less any trade discount plus all costs essential to make the asset usable. Cost of transportation and transit insurance are included in acquisition cost. However, the financial charges such as interest on money borrowed for the purchase for the purchase of the asset, should no be included in the cost of the asset.
2. **Estimated life of the Asset:** Estimated life generally means that for how many years or hours an asset could be used in business with ordinary repairs for generating revenues. For estimating useful life of an asset one must begin with the consideration of its physical life and



the modifications, if any, made, factors of obsolescence and experience with similar assets. Infact, the economic life of an asset is shorter than its physical life. The physical life is based mostly on internal policies such as intensity of use, repairs, maintenance and replacements. The economic life, on the other hand, is based mostly on external factors such as obsolescence from technological changes.

3. **Scrap Value of the Asset:** The salvage value of the asset is that value which is estimated to be realised on account of the sale of the asset at the end of its useful life. This value should be calculated after deducting the disposal costs from the sale value of the asset. If the scrap value is considered as insignificant, it is normally regarded as nil.

5.6 METHODS OF CALCULATING DEPRECIATION

The following are various methods of allocating depreciation in use :

- Fixed instalment method or straight line method.
- Machine hour rate method.
- Diminishing Balance method.
- Sum of years digits method
- Annuity method
- Depreciation Fund Method
- Insurance Policy Method
- Depletion Method.

Straight Line Method

This is also known as fixed instalment method. Under this method the depreciation is charged on the uniform basis year after year. When the amount of depreciation charged yearly under this method is plotted on a graph paper, we shall get a straight line. Thus, the straight line method assumes that depreciations is a function, of time rather than use in the sense that each accounting period received the same benefit from using the asset as every other period. The formula for calculating depreciation charge for each accounting period is:

$$\text{Amount of Annual Depreciation} = \frac{\text{Original cost of Fixed Asset} - \text{Residual value}}{\text{Estimated Life in Years}}$$



For example, if an asset cost Rs. 50,000 and it will have a residual value of Rs. 2000 at the end of its useful life of 10 years, the amount of annual depreciation will be Rs. 4800 and it will be calculated as follow:

$$\text{Depreciation} = \frac{50000 - 2000}{10} = \frac{48000}{10} = \text{Rs. 4800}$$

This method has many shortcomings. First, it does not take into consideration the seasonal fluctuations, booms and depression. The amount of depreciation is the same in that year in which the machine is used day and night to that in the another year in which it is used for some months. Second, it ignores the interest on the money spent on the acquisition of that asset. Third, the total charge for use of asset (i.e., depreciation and repairs) goes on increasing form year to year though the assets might have been use uniformly from year to year. For example, repairs cost together with depreciation charge in the beginning years is much less than what it is in the later year. Thus, each subsequent year is burdened with grater charge for the use of asset on account of increasing cost on repairs.

Illustration - I:

H. Ltd. purchased a machinery on 1st January. 2000 for Rs. 29000 and spent Rs. 2000 on its cartage and Rs. 1,000 on its erection. Machinery is estimated to have a scrap value of Rs. 5000 at the end of its useful life of 5 year. The accounts are closed every year on 31st December. Prepare the machinery account for five years charging depreciation according to straight line method.

Solution :

Machinery Account

Date	Particulars	Rs.	Date	Particulars	Rs.
1990	To Bank	22000	Dec. 31	By Depreciation	4000
Jan. 1	To Bank	2000	"	By Balance C/d	21000
	To Bank	1000			
		<u>25000</u>			<u>25000</u>
2001	To Balance b/d	21000	2001	By Depreciation	4000
Jan.1			Dec.31	Balance c/d	17000
2002	To Balance/b/c	<u>21000</u>	2002	By Depreciation	<u>21000</u>



		17000			4000
Jan.1			Dec. 31	By Balance c/d	13000
		<u>17000</u>			<u>17000</u>
2003	To Balance b/c	13000	2003	By Depreciation	4000
Jan.1			Dec.31	By Balance	9000
		<u>13000</u>			<u>13000</u>
2004	To Balance b/d	9000	2004	By Depreciation	4000
Jan.1			Dec.31	By Balance c/d	5000
		<u>9000</u>			<u>9000</u>

This method is very suitable particularly in case of those assets which get depreciated more on account of expire of period e.g. lease hold properties, patents, etc.

Machine Hour Rate Method:

In case of this method, the running time of the asset is taken into account for the purpose of calculating the amount of depreciation. It is suitable for charging depreciation on plant and machinery, air-crafts, gliders, etc. The amount of depreciation is calculated as follows :

$$\text{Depreciation Amount} = \frac{\text{Acquisition cost of the Asset} - \text{Scrap value}}{\text{Life of the Asset in Hours}}$$

For example, if machinery has been purchased for Rs. 20000 and it will have a scrap value of Rs. 1000 at the end of its useful life of 1900 hours, the amount of depreciation per hour will be computed as follows:

$$\text{Depreciation} = \frac{20000 - 1000}{1900} = \frac{19000}{1900} = \text{Rs. 10 Per Hour}$$

If in a particular year, the machine runs for 490 hours, the amount of depreciation will be Rs. 4900 (i.e., Rs. 10x490). It is obvious from this example that under machine hour rate method the amount of depreciation is closely related with the frequency of use of an asset. The simplicity in



calculations and understanding is the main advantage of this methods. However, it can be used only in case of those assets whose life can be measured in terms of working time.

Written Down Value Method:

This is also known as Diminishing Balance method. Under the diminishing balance method depreciation is charged at fixed rate on the reducing balance (i.e., cost less depreciation) every year. Thus, the amount of depreciation goes on decreasing every year. Under this method also the amount of depreciation is transferred to profit and loss account in each of the year and in the balance sheet the asset is shown at book value after reducing depreciation from it. For example, if an asset is purchased for Rs. 10,000 and depreciation is to be charged at 20% p.a. on reducing balance system then the depreciation for the first year will be Rs. 2000. In the second year, it will be Rs. 1600 (i.e. 20% of 8000), in the third year Rs. 1280 (i.e. 20% of 6400) and so on. The rate of depreciation under this method can be computed by using the following formula:

$$\text{Depreciation Rate} = 1 - \sqrt[n]{\frac{\text{Net Scrap Value}}{\text{Acquisition cost}}}$$

For example, if the cost of an asset is 27000, scrap value Rs. 3375, economic life 3 year, the rate of depreciation would be:

$$\text{Depreciation Rate} = 1 - \sqrt[3]{\frac{3375}{27000}} = 1 - \frac{15}{30} = 50\%$$

Merits of Diminishing Balance Method:

- (i) It is very easy to understand and calculate the amount of depreciation despite the early variation in the book value after depreciation.
- (ii) This method put an equal burden for use of the asset on each subsequent year since the amount of depreciation goes on decreasing for each subsequent year while the charge for repairs goes on increasing for each subsequent year.
- (iii) This method has also been approved by the income tax act applicable in India.
- (iv) Asset is never reduced to zero because if the rate of depreciation is (say) 20%. Then even when asset is reduced to very small value, there must remain the 80% of that small value as on written off balance.

Demerit of Diminishing Balance Method:



- (i) It ignores the interest on the capital committed to purchase that asset.
- (ii) It does not provide adequately for replacing the asset at the end of its life.
- (iii) The calculation of rate of depreciation is not so simple.
- (iv) The formula for calculating the rate of depreciation can be applied only when there is some residual of the asset.

Suitability: This method is suitable in those cases where the receipts are expected to decline as the asset gets older and, it is believed that the allocation of depreciation of depreciation ought to be related to the pattern of assets expected receipts.

Illustration 2:

A company purchases Machinery on 1st April 1990 for Rs. 20,000. Prepare the machinery account for three years charging depreciation @ 25% p.a. according to the written Down value Method.

Machinery Account

Date	Particulars	Rs.	Date	Particulars	Rs.
1990 Apr. 1	To Bank	20000	2001 Mar. 31	By Depreciation By Balance C/d	5000 15000
		20000			20000
2001 Apr.1	To Balance b/d	15000	2002 Mar.31	By Depreciation By Balance c/d	3750 11250
		15000			15000
2002 Apr/	To Balance b/d	11250	2003 Mar.31	By Depreciation By Balance c/d	2812.5 8437.5
		11250			11250



Sum of Years digits (SYD) Method

Under this method also the amount of depreciation goes on diminishing in the future years similar to that under diminishing Balance method. For calculating the amount of depreciation to be charged to the profit and loss account this method takes into account cost, scrap value, and life of the asset. The following formula is used for determining depreciation:

$$\text{Depreciation} = \frac{\text{Remaining life of Asset at the end of year} + 1}{\text{Sum of Digit Representing Life of the Asset}} \times \text{Acquisition Cost}$$

For example, an asset having an effective life of 5 years is purchased at a cost of Rs. 20,000. It is estimated that its scrap value at the end of its effective life will be Rs. 2000. The depreciation on this asset, if SYD method is followed, will be calculated as follows from one to five years:

Year		Depreciation Amount
1	=	_____ x 18000 = Rs. 6000
2.	=	_____ x 18000 = Rs. 4800
3.	=	_____ x 18000 = Rs. 3600
4.	=	_____ x 18000 = Rs. 2400
5.	=	_____ x 18000 = Rs. 1200

Annuity Method:

So far we have described such methods of charging depreciation which ignore the interest factor. Also, sometimes it becomes inconvenient for a company to follow any of the methods discussed earlier. Under such circumstances the company may use some special depreciation systems. Annuity method is one of these special systems of depreciation. Under this system, the depreciation is charged on the basis that besides losing the acquisition cost of the asset the business also loses interest on the amount used for purchasing the asset. Here, interest refers to that income which the business would have earned otherwise if the money used in buying the asset would have been committed in some other profitable investment. Therefore, under the annuity method the amount of total depreciation is determined by adding the cost of the and interest



thereon at an expected rate. The annuity table is used to help in the determination of the amount of depreciation. A specimen of Annuity Table is as follows:

Annuity Table

Year	3%	4%	5%	6%
4	0.269027	0.275490	0.282012	0.288591
5	0.218335	0.224627	0.230975	0.237376
6	0.184598	0.190762	0.197012	0.203363
7.	0.160506	0.166610	0.172820	0.179135
8.	0.142456	0.148528	0.154722	0.161036
9.	0.128434	0.134493	0.140690	0.147022
10.	0.117231	0.12391	0.129505	0.135868

In case depreciation is charged according to this method, the following accounting entries are passed:

Sr. No.	Particular	L. F. No.	Debit (Dr)	Credit (Cr)
1	Purchase of an Asset			
	Asset Account Dr		-	
	To Bank Account			-
2	For Charging Interest			
	Asset Account Dr		-	
	To Interest on Asset			-
3	For Charging Depreciation			
	Depreciation Account Dr		-	
	To Asset Account			-

Evaluation of Annuity Method

Merits:

- (i) This method keep into account interest on money spent on the purchase of the asset.
- (ii) The value of the asset become zero at the end of life.

**Demerits:**

- (i) This method is comparatively more difficult than the methods discussed so far.
- (ii) It makes no arrangement of money to replace the old asset with the new one at the expiry of its life.
- (iii) Under this method the burden on the profit and loss account is no similar in each year because the depreciation remains constant year after year but the interest goes on decreasing.

Illustration 3

On 1st January, 2000 a firm purchased a leasehold property for 4 year at a cost of Rs. 24000. It decides to depreciate the lease by Annuity Method by charging interest at 5% per annum. The Annuity Table shows that the annual necessary to write off Rs. 1 at 5% Rs. 0.282012. You are required to prepare the lease Hold Property Account for four years and show the net amount to be charged to the profit and loss account for these four years.

Lease Hold Property Account

Date	Particulars	Rs.	Date	Particulars	Rs.
2000 Jan. 1	To Bank	24000.00	2000 Dec. 31	By Depreciation	6768.29
	To interest	1200.00	Dec.31	By balance c/d	18431.71
		25200.00			25200.00
2001 Jan.1	To balance b/d	18431.71	2001 Dec.31	By Depreciation	6768.29
Dec.31	To Interest	921.59	Dec.31	By Balance c/d	12585.01
		19353.30			19353.30
2002 Jan.1	To balance b/d	12585.01	2002 Dec.31	By Depreciation	6768.29



Dec. 31	To Interest	629.25	Dec.31 By Balance c/d	6445.97
		<u>13214.26</u>		<u>13214.26</u>
2003	To balance b/d	6445.97	2003 By Depreciation	6768.29
Jan.1			Dec.31 By Balance c/d	9000
Dec.31	To Interest	322.30		13000
		6768.27		6768.27
Net Amount chargeable to the profit and loss account				
Year	Depreciation Debited	Interest Credited	Net Charge against Profit	
2000	6768.29	1200.00	5568.29	
2001	6768.29	921.59	5846.70	
2002	6768.29	629.25	6139.04	
2003	6768.29	322.30	6445.99	
Rs.	27073.16	3073.14	24000.02	

6. **Depreciation Fund Method :** Business assets become useless at the expiry of their life and, therefore, need replacement. However, all the methods of depreciation discussed above do not help in accumulating the amount which can be readily available for the replacement of the asset its useful life comes to an end

Depreciation Fund Method:

Depreciation fund method takes care of such a contingency as it incorporates the benefits of depreciating the asset as well as accumulating the necessary amount for its replacement. Under this



method, the amount of depreciation charged from the profit and loss account is invested in certain securities carrying a particular rate of interest. The interest received on the investment in such securities is also invested every year together with the amount of annual depreciation. In the last of the life of asset the depreciation amount is set aside interest is received as usual. But the amount is not invested because the amount is immediately needed for the purchase of new asset. Rather all the investments so far accumulated are sold away. Cash realised on the sale of investments is utilised for the purchase of new asset. The following accounting entries are generally made in order to work out this system of depreciation.

1. At the End of the First Year

Sr. No.	Particular	L. F. No.	Debit (Dr)	Credit (Cr)
1	For setting aside the amount of depreciation: The amount to be charge by way of depreciation is determined on the basis of sinking Fund Table given as an Appendix at the end of every book of accountancy.			
	Depreciation A/c Dr To Depreciation Fund A/c (or Sinking Fund A/c)		-	-
2.	For investing the amount charged by way of depreciation:			
	Depreciation Fund Investment A/c Dr To Bank A/c		-	-

2. In the Second and Subsequent Years

Sr. No.	Particular	L. F. No.	Debit (Dr)	Credit (Cr)
1	For Receiving Interest: The interest on the balance of Depreciation Fund Investment outstanding in the beginning of each year will be received by the end of the year. This entry is:			
	Bank A/c Dr		-	



	To Depreciation Fund A/c			-
2	For Setting aside the amount of Depreciation			
	Profit and Loss A/c Dr		-	
	To Depreciation Fund A/c			-
3	For Investing the Amount: Annual instalment of depreciation and interest received invested.			
	Depreciation Fund Investment A/c Dr		-	
	To Bank A/c			-

3. In the Last Year:

Sr. No.	Particular	L. F. No.	Debit (Dr)	Credit (Cr)
1	For receiving interest			
	Bank Account Dr		-	
	To Depreciation Fund Account			-
2	For setting aside the depreciation amount			
	Profit and Loss Account Dr		-	
	To Depreciation Fund A/c			-
Note: In the last year no investment will be made, because the amount is immediately required for the purchase of new asset.				
3	For the sale of Investment			
	Bank Account Dr		-	
	To Depreciation Fund Investment A/c			-
4.	For the Transfer of Profit or Loss on sale on investment: The profit or loss on the sale of these investments is transferred to the Depreciation Fund Account.			
	The Entry of Loss:			
	Depreciation Fund A/c Dr		-	



	To Depreciation Fund Investment A/c			-
	The Entry for Profit			
	Depreciation Fund Investment A/c Dr		-	
	To Depreciation Fund A/c			-
5.	For the Sale of Old Asset:			
	Bank A/c Dr		-	
	To Asset A/c			-
6.	The depreciation fund is transferred to asset account and any balance left in the asset account transferred to profit and loss account. The entry is:			
	Depreciation Fund A/c Dr			
	To Asset A/c			
7.	The balance in Asset Account represents profit or loss. Therefore it will be transferred to the profit and loss account.			
8.	The cash realised on the sale of investments and the old asset is utilised for the purchase of new asset.			

Illustration 4. Amitabh Company Ltd. purchased 4 year lease on January , 2000 for Rs. 60,000. The company decided to charge depreciation according to depreciation fund method. It is expected that investments will earn interest @5% p.a. Sinking Fund Table shows that Rs. 0.232012 invested each year will produce Rs. 1 at the end of 4 years at 5% p.a. At the expiry of lease , the Depreciation Fund Investments were sold for Rs. 45200. A new lease is purchased for Rs. on 1.1.2004. Show the journal entries and prepare the necessary accounts in the book the company.

Solution:

Journal

Date	Particulars	Debit	Credit
1.1.2000	Lease A/c Dr To Bank A/c (Being the purchase of lease)	60,000	60,000
31.12.00	Depreciation A/c Dr To Depreciation Fund A/c (Being annual amount of depreciation as per	13920.7	13920.7



	sinking fund tables)		
31.12.00	Depreciation Fund Investment A/c Dr To Bank A/c (Being purchase of the investments against the depreciation fund)	13920.7	13920.7
31.12.01	Bank A/c Dr To depreciation fund A/c (Being the receipt of interest on depreciation fund investment A/c transfer to depreciation fund A/c)	696.0	696.0
31.12.01	Depreciation A/c Dr To Depreciation Fund A/c (Being annual depreciation set-aside)	13920.7	13920.7
31.12.01	Depreciation Fund Investment A/c Dr To Bank A/c (Being purchase of the investments against the depreciation fund)	14616.7	14616.7
31.12.02	Bank Account Dr To depreciation fund A/c (Being receipt of interest and its transfer to depreciation fund A/c)	1426.9	1426.9
31.12.02	Depreciation A/c Dr To depreciation fund A/c (Being annual depreciation set aside)	13920.7	13920.7
31.12.02	Depreciation Fund Investment A/c Dr To Bank A/c (Being purchase of investments)	15347.6	15347.6
31.12.03	Bank A/c Dr To depreciation fund A/c (Being receipt of interest on depreciation fund investment)	2194.3	2194.3
31.12.03	Depreciation A/c Dr To depreciation A/c (Being annual depreciation set aside)	13920.7	13920.7



31.12.00	Bank A/c To depreciation fund investment A/c (being sale of depreciation fund investment A/c)	Dr	45200	45200
31.12.03	Depreciation Fund Investment A/c To depreciation fund A/c (Being profit on sale investment transferred)	Dr	1315.0	1315.0
31.12.03	Depreciation fund A/c To lease A/c (Being the transfer of depreciation fund A/c to lease A/c)	Dr	61315.0	61315.0
31.12.03	Lease A/c To PCL A/c (Being Balance of lease A/c transferred to place)	Dr	1315.0	1315.0
1.1.04	Lease A/c To Bank A/c (Being Cash paid for lease)	Dr	70000.0	70000.0

Depreciation Fund Account

Date	Particulars	Rs.	Date	Particulars	Rs.
31.12.00	By Balance c/d	13920.7	31.12.00	By Dep. a/c	13920.7
		<u>13920.7</u>			<u>13920.7</u>
31.12.01	To Balance c/d	28537.4	1.1.01	By Balance b/d	13920.7
			31.12.01	By Bank A/c Int.	696.0
			31.12.01	By Dec. a/c	13920.4
		<u>28537.4</u>			<u>28537.4</u>
31.12.02	By Balance c/d	43885.0	1.1.02	By Balance c/d	28537.4
			31.12.02	By Bank A/c Int.	1426.9



		31.12.02	By Dep. A/c	13920.7
				<u>43885.0</u>
31.12.03	To lease A/c	61315.0	1.1.03 By Balance b/d	<u>43885.0</u>
			31.12.03 By Bank Interest	3194.3
			31.12.03 By Dep. a/c	61315.0
		61315.0		61315.0

Lease Account

Date	Particulars	Rs.	Date	Particulars	Rs.
1.1.00	To Bank A/c	60000	31.12.00	By Balance c/d	60000
		<u>60000</u>			<u>60000</u>
1.1.01	To Balance b/d	60000	31.12.01	By Balance c/d	<u>60000</u>
	D				
	e	<u>60000</u>			<u>60000</u>
1.1.02	To Balance b/d	60000	31.12.02	By Balance c/d	<u>60000</u>
	r				
	e	<u>60000</u>			<u>60000</u>
1.1.03	To Balance b/d	60000	31.12.03	By Balance c/d	<u>60000</u>
	i				
	a	<u>60000</u>			<u>60000</u>
	t				
31.12.03	To Balance b/d	60000			
31.12.03	To P & L A/c	1315			
	i				
	o				
	n				
	(Profit)	<u>61315</u>			<u>61315</u>



Depreciation Fund Investment A/c

Date	Particulars	Rs.	Date	Particulars	Rs.
31.12.00	To Bank A/c	13920.7	31.12.00	By Balance c/d	13920.7
		<u>13920.7</u>			<u>13920.7</u>
1.1.01	To Balance b/d	13920.7	31.12.01	By Balance c/d	28537.4
31.12.02	To Bank A/c	14616.7			
		<u>28537.4</u>			<u>28537.4</u>
1.1.02	To Balance b/d	28537.4	31.12.02	By Balance c/d	43885.0
31.12.02	To Bank A/c	15347.6			
		<u>43885.0</u>			<u>43885.0</u>
1.1.03	To Balance b/d	43885.0	31.12.03	By Bank a/c	45200.0
	To Dep. Fund a/c	1315.0			
		<u>45200.0</u>			<u>45200.0</u>

Insurance Policy Method:

Under this method, instead of investing the money in securities an insurance policy for the required amount is taken. The amount of the policy is such that it is adequate to replace the asset when it is worn out. A fixed sum equal to the amount do depreciation is paid as premium every year. Company receiving premium allows a small rate of interest on compound basis. At the maturity of the policy, the insurance company pays the agreed amount with which the new asset can be purchased. Accounting entries will be made as follows:

1. First and every subsequent years:

Sr. No.	Particular	L. F. No.	Debit (Dr)	Credit (Cr)
1	Depreciation Insurance policy A/c Dr		-	



	To Bank A/c (Entry in the beginning of the year for payment of insurance premium)			-
2	Profit and Loss A/c Dr To Depreciation Fund A/c (Entry at the end of the year for providing depreciation)		-	-

2. Last year:

Sr. No.	Particular	L. F. No.	Debit (Dr)	Credit (Cr)
1	Bank A/c Dr To Depreciation Policy A/c (Entry for the amount of policy received)		-	-
2	Depreciation Insurance Policy A/c Dr To Depreciation Fund A/c (For transfer of profit on insurance policy)		-	-
3.	Depreciation Fund A/c Dr To Asset A/c (For transfer of accumulated depreciation to the asset account)		-	-
4	New Asset A/c Dr To Bank A/c (On purchase of new asset)		-	-

Illustration 5. On 1.1.2003, a firm purchased a lease for four years for Rs. 50,000. It decided to provide for its replacement by means of an insurance policy for Rs. 50,000. The annual premium is Rs. 11,000. On 1.1.1997, the lease is renewed for a further period of 4 years for the same amount. Show the necessary ledger accounts.



Lease Account

Date	Particulars	Rs.	Date	Particulars	Rs.
1.1.03	To Bank A/c	50000	31.12.03	By Balance c/d	50000
1.1.04	To Balance b/d	50000	31.12.04	By Balance c/d	50000
1.1.05	To Bank A/c	50000	31.12.05	By Balance c/d	50000
1.1.06	To Bank A/c	50000	31.12.06	By Balance c/d	50000

Depreciation Insurance Policy A/c

Date	Particulars	Rs.	Date	Particulars	Rs.
1.1.03	To Balance A/c	11000	31.12.03	By Balance c/d	11000
1.1.04	To Balance b/d	11000	31.12.04	By Balance c/d	22000
	To Bank A/c	11000			
		<u>11000</u>			
		22000			<u>22000</u>
1.1.05	To Balance b/d	22000	31.12.05	By Balance c/d	33000
	To Bank A/c	11000			
		<u>11000</u>			
		33000			<u>33000</u>
1.1.06	To Balance b/d	33000	31.12.06	By Bank	50000
	To Bank	11000			
Dec.31	To profit	6000			
	Transferred to				
	Dep. Fund A/c				
		<u>6000</u>			
		50000			<u>50000</u>



Depreciation Fund Account

Date	Particulars	Rs.	Date	Particulars	Rs.
1.1.03	To Balance c/d	11000	31.12.03	By P. & L c/c	11000
1.1.04	To Balance c/d	22000	31.12.04	By Balance b/d	11000
			Dec. 31	By P. & L a/c	11000
		22000			22000
1.1.05	To Balance c/d	33000	31.12.05	By Balance b/d	22000
				By P. & L. a/c	11000
		33000			33000
1.1.06	To Lease a/c	50000	31.12.06	By Balance b/d	33000
			Dec. 31	By P. & L. a/c	11000
			Dec. 31	By Dep. Insurance	6000
				Policy a/c	
		50000			50000

Depletion Method:

This is also known as productive output method. In this method it is essential to make an estimate of the units of output the asset will produce in its life time. This method is suitable in case of mines, queries, etc., where it is possible to make an estimate of the total output likely to be available. Depreciation is calculated per unit of output. Formula for calculating the depreciation rate is as under:

$$r = \frac{\text{Acquisition Cost} - \text{Scrap Value}}{\text{Units of Output}}$$

Example: If a mine is purchased for 50,000 and it is estimated that the total quantity of mineral in the mine is 1,00,000 tonnes, the rate of depreciation would be:

$$r = \frac{50000}{100000} = 0.5$$

Hence, the rate of depreciation is 50 paise per tonne. In case output in a year is 20,000 tonnes, the amount of depreciation to be charged to the profit and loss account would be Rs. 10,000 (i.e., 20,000 tonnes X Rs. 0.50).



This method is useful where the output can be measured effectively, and the utility of the asset is directly related to its production use. Thus, the method provides the benefit of correlating the amount of depreciation with the productive use of asset.

5.7 METHODS OF RECORDING DEPRECIATION

In order to record depreciation, a provision for depreciation may or may not be maintained. In case a 'Provision for Depreciation Account' is maintained, the respective asset appears at its original cost since the depreciation is credited to 'Provision for Depreciation Account' instead of the 'Respective Asset Account'. In case a 'Provision for Depreciation Account' is not maintained, the respective asset appears at a written down value since the depreciation is credited to the 'Respective Asset Account'. The accounting entries under both these cases are summarised as under:

Case	When a Provision for Depreciation Account is maintained		When a Provision for Depreciation Account is not maintained	
(a) For providing Depreciation	Depreciation	Dr.	Depreciation A/c	Dr.
	To Provision for Depreciation		To Asset A/c	
(b) For closure of Depreciation A/c	Profit and Loss A/c	Dr.	Profit and Loss A/c	Dr.
	To Depreciation A/c		To Depreciation A/c	
(c) On disposal of an Asset	For transfer of		For recording sale	
	(i) original cost of asset disposed off		(i) proceeds	
	Asset Disposal A/c	Dr.	Cash A/c/Bank A/c	Dr.
	To Asset A/c		To Asset A/c	
	(ii) For transfer of accumulated depreciation on asset disposed		For transfer of Profit/loss	
			(ii) on asset disposed off	
			(a) In case of profit	



off	Asset A/c	Dr.
Provision for Depreciation A/c		
Dr.	To Profit and Loss A/c	
To Asset Disposal	In case of loss, reverse	
A/c	(b) of	
	the above entry will be	
(iii) For recording sale proceeds	passed.	
Cash A/c/Bank A/c	Dr.	
To Asset Disposal		
A/c		

(iv) For transfer of the balance in Asset Disposal Account

(a) In case of profit

Asset Disposal A/c Dr.

To Profit & Loss A/c

(b) In case of loss, reverse of the above entry will be passed.

Notes:

(i) Book Value as on date of Sale = Original Cost–Total Depreciation till date of sale.

(ii) Profit=Sale Proceeds – Book Value as on date of sale.

(iii) Loss=Book value as on date of sale – Sale Proceeds

(iv) In case of exchange of an asset, sale proceeds imply the 'Trade in allowance' (i.e. the amount at which the vendor agrees to acquire the old asset).

(v) In case of destruction/damage of an insured asset by fire or accident, sale proceeds imply claim admitted by Insurance company together with salvage value (if any).

Illustration 6:

On 1st Jan. 2006, X Ltd. purchased a machinery for Rs. 12,00,000. On 1st July 1998, a part of the machinery purchased on 1st Jan. 2006 for Rs. 80,0000 was sold for Rs. 45,000 and a new machinery at a cost of Rs. 1,58,000 was purchased and installed on the same date. The company has adopted the method of providing 10% p.a. depreciation on the original cost of the machinery.



Required: Show the necessary leader accounts assuming that (a) Provision for Depreciation Account is not maintained, (b) Provision for Depreciation Account is maintained.

Solution :

(a) When Provision for Depreciation Account is not maintained

(b) When 'Provision for Depreciation Account is maintained

Dr. Machinery Account			Cr.		
Date	Particulars	Rs.	Date	Particulars	Rs.
01.01.06	To Bank A/c	12,00,000	31.12.06	By Depreciation A/c	1,20,000
				By Balance c/d	10,80,000
		12,00,000			12,00,000
01.01.97	To Balance b/d	10,80,000	31.12.97	By Depreciation A/c	1,20,000
				By Balance c/d	9,60,000
		10,80,000			10,80,000
01.01.98	To Balance b/d	9,60,000	01.07.98	By Bank A/c	45,000
01.07.98	To Bank A/c	1,58,000		By Profit & Loss A/c	15,000
			31.12.98	By Depreciation A/c	1,23,900
				By Balance c/d	9,34,100
		11,18,000			11,18,000

Dr. Machinery Account (at original cost)			Cr.		
Date	Particulars	Rs.	Date	Particulars	Rs.
01.01.06	To Bank A/c	12,00,000	31.12.06	By Balance c/d	12,00,000
01.01.97	To Balance b/d	12,00,000	31.12.97	By Balance c/d	12,00,000
01.01.98	To Balance b/d	12,00,000	01.07.98	By Asset Disposal A/c	80,000
01.07.98	To Bank A/c	1,58,000	31.12.98	By Balance c/d	12,78,000
		13,58,000			13,58,000

Dr. Provision or Depreciation Account			Cr.		
---------------------------------------	--	--	-----	--	--



Date	Particulars	Rs.	Date	Particulars	Rs.
31.12.06	To Balance c/d	1,20,000	31.12.06	By Profit & Loss A/c	1,20,000
31.12.97	To Balance c/d	2,40,000	01.01.97	By Balance b/d	1,20,000
			31.12.97	By Profit & Loss A/c	1,20,000
		2,40,000			2,40,000
01.07.98	To Asset Disposal A/c	20,000	01.01.98	By Balance b/d	2,40,000
31.12.98	To Balance c/d	3,43,900	31.12.98	By Profit & Loss A/c	1,23,900
		3,63,900			3,63,900

Dr.			Cr.		
Asset Disposal Account					
Date	Particulars	Rs.	Date	Particulars	Rs.
01.07.98	To Machinery A/c	80,000	01.07.98	By Provision for	
				Depreciation A/c	20,000
				By Bank A/c	45,000
				By Profit & Loss A/c	15,000
				(Loss on sale)	
		80,000			80,000

Working Notes:

(i)	Calculation of Loss on Sale of Machinery	Rs.
A.	Original Cost as on 1.1.06	80,000
B.	Less : Depreciation @ 10% p.a. on Rs. 80,000	8,000
C.	Balance as on 1.1.97 (A-B)	72,000
D.	Less : Depreciation @ 10% p.a. on Rs. 80,000	8,000
E.	Balance as on 1.1.98 (C-D)	64,000

Working Notes:

(i)	Calculation of Loss on Sale of Machinery	Rs.
A.	Original Cost as on 1.1.06	80,000
B.	Less : Depreciation @ 10% p.a. on Rs. 80,000	8,000
C.	Balance as on 1.1.97 (A-B)	72,000



D.	Less : Depreciation @ 10% p.a. on Rs. 80,000	8,000
E.	Balance as on 1.1.98 (C–D)	64,000
F.	a. on Rs. 80,000 for 6 months	4,000
G.	Balance as on 1.7.98 (E–F)	60,000
H.	Less: Sale proceeds	45,000
I.	Loss on Sale (G–H)	15,000
23.	Calculation of Depreciation for 1998	
a)	On Rs. 11,20,000 for 1 year	1,12,000
b)	On Rs. 60,000 for 1/2 year	4,000
c)	On Rs. 1,58,000 for 1/2 year	7,900
		1,23,900

Illustration 7:

Rahul Ltd. which depreciates the machines @ 25% p.a. on the reducing balance method, provides you the following particulars:

Cost on 31.12.95 Rs. 2,46,000. Provision for Depreciation (on 31.12.95) Rs. 1,24,000. No amounts being charged in the year of sale but full charge is being made for the years during which addition is made. On 1.7.97, one new machine was purchased for Rs. 24,000 and old machinery purchased on 1.7.1994 for Rs. 20,000 was discarded but could not be sold immediately. However, it was expected to realise Rs. 5,000 for same. Prepare (a) machinery Account, (b) Provision for Depreciation Account, and (c) Machinery Disposal Account for the years 1996 and 1997.

Solution:

Machinery Account					
Dr.			Cr.		
Date	Particulars	Rs.	Date	Particulars	Rs.
01.01.96	To Balance b/d	2,46,000	31.12.96	By Balance c/d	2,46,000
01.01.97	To Balance b/d	2,46,000	01.07.97	By Machinery	
01.07.97	To Bank A/c	24,000		Disposal A/c	20,000
			31.12.97	By Balance c/d	2,50,000



		2,70,000			2,70,000
Dr.	Provision for Depreciation Account				Cr.
Date	Particulars	Rs.	Date	Particulars	Rs.
31.12.96	To Balance c/d	1,54,500	01.01.96	By Balance b/d	1,24,000
			31.12.96	By Depreciation A/c	
				[25% of (Rs. 2,46,000)	
				- Rs. 1,24,000]	30,500
		1,54,500			1,54,500
01.07.97	To Machinery	11,563	01.01.97	By Balance b/d	1,54,500
	Disposal a/c		31.12.97	By Depreciation	
31.12.97	By Balance c/d	1,69,703		[25% of (Rs. 2,50,000-	
				Rs. 1,54,500+Rs.11,563]	26,766
		<u>1,81,266</u>			<u>1,81,266</u>

Dr.	Machinery Disposal Account				Cr.
Date	Particulars	Rs.	Date	Particulars	Rs.
01.07.97	To Machinery	20,000	01.07.97	By Provision for	
				Depreciation A/c	11,563
				By P&L A/c (Loss)	
				(Purchase concept)	3,437
				By Balance c/d	5,000
		<u>20,000</u>			<u>20,000</u>

Working Note : Calculation of Depreciation provided on Machine discarded

Book	Accumulated
Value	Depreciation



	Rs.	Rs.
A. Original Cost	20,000	—
B. Less : Depreciation for 1994	5,000	5,000
C. Book value on 1.1.1995	<u>15,000</u>	
D. Less : Depreciation for 1995	3,750	3,750
E. Book Value on 1.1.1996	<u>11,250</u>	
F. Less : Depreciation for 1996	2,813	2,813
	<u>8,437</u>	<u>11,563</u>

5.8 SALE OF AN ASSET

An enterprise may sell an asset either because of obsolescence or inadequacy or even for other reasons. In case an asset is sold during the course of the year, the amount realised should be credited to the Asset Account. The amount of depreciation for the period of which the asset has been used should be written off in the usual manner. Any balance in the Asset Account will represent profit or loss on disposal of the asset. This balance in the Asset Account should be transferred to the profit and loss account

Illustration 8: A company purchased a machinery costing Rs. 60,000 on 1.4.2000. The accounting year of the company ends on 31st December every year. The company further purchased machinery on 1st October, 2000 costing Rs. 40,000. On 1st January, 2002, one-third of the machinery which was installed on 1.4.2000, became obsolete and was sold for Rs. 5000. Show how the machinery account would appear in the books of the company. The depreciation is to be charged at 10% p.a. on written down value method.

Machinery Account

Date	Particulars	Rs.	Date	Particulars	Rs.
1.4.00	To Bank	60000	31.12.00	By Depreciation	45000
Oct. 1	To Bank	40000		on Rs. 60000 for	
				9 month on Rs.	
				40000 for 3 month	1000



			Dec.31	By Balance c/d	94500
		100000			100000
1.1.01	To Balance b/d	94500	31.12.01	By Depreciation on Rs. 94500 for 1 year	9450
			Dec. 31	By Balance c/d	85050
		<u>94500</u>			<u>94500</u>
1.1.02	To Balance b/d	85050	31.12.01	By Bank (sale pro)	5000
			Jan. 1	By Profit Loss account loss on sale (16650-5000)	11650
			Dec. 31	By Depreciation	6840
			Dec. 31	By Balance c/d	61560
		<u>85050</u>			<u>85050</u>
*Total written down value as on Jan. 1, 2002					85050
Less written down value of 1/3 of Machinery sold (2000-(1500+1850))					16650
					68400
Depreciation at 10% on Rs. 68400					6840

Depreciation on an asset purchased in the course of a year

Two alternatives are available regarding charging of depreciation on assets which have been bought during the course of an accounting year. These are as follows:

1. Depreciation may be charged only for the part of the year for which the asset could have been made available for use after purchase of it.
2. Depreciation may be charged for the full year irrespective of the date of purchase. It will be ascertained at the given rate of depreciation. The Income tax authorities also permit this.

Important Note:

If there is no specific instruction in the question about depreciation, the students should give the assumption made by them in this regard. But, in case rate of depreciation has been given as a



certain percentage per annum and the purchasing date has been given, it is suggested to calculate depreciation only for the part of the year for which the asset has been made available for its use.

5.9 CHANGE OF DEPRECIATION METHOD

To ensure comparability of results from year to year, it is essential that once a method of depreciation is selected by the management it should be followed consistently. However, sometimes a change in the method of depreciation may be required. The change may be required either because of statutory compulsion or required by an accounting standard or change would result in more appropriate presentation of the financial statements. The change in the method of depreciation may be desired from the current year onwards. In such a case, depreciation will be charged according to the new method from the current year.

Illustration: 9

Om Ltd. purchased a computer for Rs. 50,000 on 1.1.2003. It has five years life and a salvage value of Rs. 5,000. Depreciation was provided on straight line basis. With effect from 1.1.2005, the company decided to change the method of depreciation to Diminishing Balance method @ 20% p.a. Prepare computer account from 2003 to 2006.

Assume, the company prepare final accounts on 31st December every year

Computer Account

Date	Particulars	Rs.	Date	Particulars	Rs.
1.1.03	To Cash A/c	50000	31.12.03	By Depreciation	9000
			"	By Balance c/d	41000
		<u>50000</u>			<u>50000</u>
1.1.04	To Balance b/d	41000	31.12.04	By Depreciation	9000
			"	By Balance c/d	32000
		<u>41000</u>			<u>41000</u>
1.1.05	To Balance b/d	32000	31.12.05	By Depreciation	6400
			"	By Balance c/d	25600

$$\text{Depreciation on straight line basis} = \text{Rs. } \frac{50000 - 5000}{5} = \text{Rs. } 9000$$
$$(\text{Book value Rs. 32000}) = \frac{\text{Rs } 32000 \times 20}{100} = \text{Rs. 6400}$$

Sometimes a change in the method of depreciation is effected retrospectively. In such a case, the following steps are required:

- (i) Find out the depreciation which has already been charged according to the old method or at the old rate.
- (ii) Compute the amount of depreciation that is to be charged according to the new method from the back date upto the end of the previous year.
- (iii) Find the difference, if any, under (i) and (ii) mentioned above.
 - (iv) In the current year in addition to the depreciation for the current year charge also the difference found under step (iii).

Taking the facts as in the illustration 7, prepare computer account for 2005 and 2006, if the firm decides on 1.1.2005 to charge depreciation according to Diminishing Balance method. Assume the change in the depreciation policy is effected by the firm since the date of purchase.

Computer Account



Date	Particulars	Rs.	Date	Particulars	Rs.
1.1.05	To Balance	32000	31.12.05	By Depreciation	
				Difference for	Nil
				earlier year (1)	
				current year (2)	6400
			Dec. 31	By Balance c/d	25600
		<u>32000</u>			<u>32000</u>
1.1.06	To Balance	25600	31.12.06	By Depreciation	5150
			"	By Balance	20480
		<u>25600</u>			<u>25600</u>

Working Notes

1)	1.1.2003	Acquisition cost of computer	50000
	31.12.03	Depreciation @ 20% p.a. on 50000	10000
	1.1.04	Balance	40000
	31.12.04	Depreciation @ 20% on Rs/ 4000	8000
		Depreciation according to Diminishing Balance method for the year 2003 and 2004 (10,000+8,000)	18000
		Less Depreciation according to straight line basis (9000+9000)	18000
		Difference	Nil
2)	1.1.95	Balance	32000
	1.12.05	Depreciation @ 20% p.a. on 32000	6400
	1.1.06	Balance	25600
	31.12.06	Depreciation @ 20% on 25600	5120
	31.12.06	Balance	20480

5.10 CHECK YOUR PROGRESS

Fill in the Blank:



1. Depreciation is the permanent and continuous decrease in the ----- of a fixed asset due to use, afflux ion of time, obsolescence, expiration of legal rights or any other cause.
2. The process of writing off intangible assets is termed as -----.
3. ----- generally means that for how many years or hours an asset could be used in business with ordinary repairs for generating revenues.
4. The ----- of the asset is that value which is estimated to be realised on account of the sale of the asset at the end of its useful life.
5. Under ----- method, the depreciation is charged on the uniform basis year after year.

5.11 SUMMARY

Depreciation is a gradual reduction in the economic value of an asset from any cause. The depreciation occurs because of constant use, passage of time, depletion, obsolescence, accidents and permanent fall in the market value. The need for providing depreciation arises to ascertain the profit or losses, to show the assets at its reasonable value, for replacement of assets, to reduce income tax, etc. The various methods of allocating depreciation include : fixed instalment methods, machine hour rate method, diminishing balance method, sum of years digits method, annuity method, depreciation fund method, insurance policy method and depletion method. The straight line method is very suitable particularly in case of those assets which get depreciated more on account of expire of period i.e. lease hold properties, patents etc. Diminishing balance method is suitable in those cases where the receipts are expected to decline as the asset gets older and, it is believed that the allocation of depreciation ought to be related to the pattern of assets expected receipts. In case an asset is sold during the course of the year, the amount realised should be credited to the Asset Account. The amount of depreciation for the period of which the asset has been used should be written off in the usual manner. Any balance in the Asset Account will represent profit or loss on disposal of the asset.

5.12 KEYWORDS

Depreciation: It is the gradual and permanent decrease in the value of an asset from any cause.

Depletion: Depletion refers to the reduction in the workable quantity of a wasting asset.

Obsolescence: It represents loss in the value of an asset on account of its becoming obsolete or out of date.



Fixed instalment method: Under this method, the assets are depreciated at a fixed amount throughout its life span.

Written down value method: Under this method, the depreciation is calculated every year on the diminishing value of the asset.

5.13 SELF ASSESSMENT TEST

1. Why is it necessary to calculate depreciation ? Discuss various factors which are considered for calculating depreciation.
2. How do the matching principle and going concern concept apply to depreciation?
3. Distinguish between the following:
 - (a) Straight line method and diminishing balance method.
 - (b) Annuity method and depreciation Fund method.
 - (c) Depreciation and depletion
4. Explain the circumstances under which different methods of depreciation can be employed.
5. Discuss the advantages and disadvantage of Insurance Policy Method and Straight Line Methods.
6. What is 'sum of the year-digits method' to depreciation ? In what way does it differ from sinking fund method of depreciation.
7. A firm purchases a plant for a sum of Rs. 10,000 on 1st January 2000. Installation charges are Rs. 2,000. Plant is estimated to have a scrap value of Rs. 1,000 at the end of its useful life of five years. You are required to prepare the plant account for five years charging depreciation according to Straight Line Method.
8. A transport company purchases 5 trucks at Rs. 2,00,000 each on April 1, 2006. The company writes off depreciation @ 20% per annum on original cost and observes calendar year as its accounting year. On October 1, 1998 one of the trucks is involved in an accident and is completely destroyed. Insurance company pays Rs. 90,000 in full settlement of claim. On the same day, the company purchases a used truck for Rs. 1,00,000 and spends Rs. 20,000 on its overhauling. Prepare Truck Account for the three years ending on 31st December 2005.
[Loss on one truck Rs. 10,000, Book Value–Old trucks Rs. 3,60,000, New Truck Rs. 1,14,000].



9. A plant is purchased for Rs. 20,000. It is depreciated at 5% per annum on reducing balance for five years when it becomes obsolete due to new method of production and is scrapped. The scrap produces Rs. 5,385. Show the plant account in the ledger.
(An Loss on sale Rs. 10,091; Depreciation 1st year Rs. 1,000; 2nd years Rs. 950; 3rd year Rs. 902; 4th year RS. 857; 5th year Rs. 815.)
10. The machinery account of a factory showed a balance of Rs. 1,90,000 on 1st January 1998. 1st accounts were made up on 31st December each year and depreciation is written off at 10% p.a. under the Diminishing Balance Method.
On 1st June 1998, New Machinery is acquired at a cost of Rs. 28,000 and installation charges incurred in erecting the machines works out to Rs. 892 on the same date. On 1st June 1998 a machine which had cost Rs. 6,000 on 1st January 2003 was sold for Rs. 750, another machine which had cost Rs. 600 on 1st January 2004, was scrapped on the same date and it realised nothing.
Write up plant and Machinery Account for the year 1998, allowing the same rate of Depreciation as in the past calculating Depreciation to the nearest multiple of a Rupee. (Ans. Loss on Sale Rs. 2,645, Loss on scrapping Rs. 377, Closing Balance Rs. 1,94,665).
11. A company purchased a four years lease on January, 1, 1985 for Rs. 20,150. It is decided to provide for the replacement of the lease at the end of four years by setting up a Depreciation Fund. It is expected that investments will fetch interest at 4 per cent. Sinking Fund tables show that to provide the requisite sum at 4 percent at the end of four years, an investment of Rs. 4,745.02 is required. Investments are made to the nearest rupee. On December 31, 1988, the investments are sold for Rs. 14,830 On 1st January, 1989, the same lease is renewed for a further period of 4 years by payment of Rs. 22,000.
Show journal entries and give the important ledger account to record the above. (Ans. Amount credited to the profit and loss account at the end of December, 1988 Rs. 17,56)
12. Chillies Ltd, acquired a long-term lease of property on payment of Rs. 60,000. A leasehold Redemption Policy was taken out on which an annual premium of Rs. 1,440 was payable. The surrender value of the policy on 31st March, 1997 was Rs. 12,896 to which amount the policy account stood adjusted. Next premium was paid on 20th December, 1997 and the surrender value on 31st March, 1978 was Rs. 14,444.



18. Show the Redemption fund account and the policy account for the year ended 31st March, 1998
19. Assuming that at maturity, a sum of Rs. 60,100 was received and the balance in policy account then stood at Rs. 59,920 give the ledger accounts showing the entries necessary to close the accounts concerned. (Ans. (i) Balance at the end of 1998 Fund A/c & Policy A/c Rs. 14,444 (ii) Transfer to P & L a/c profit on maturity Rs. 100).

5.14 ANSWER TO CHECK YOUR PROGRESS

Answer to Fill in the Blank:

1. Depreciation is the permanent and continuous decrease in the **book value** of a fixed asset due to use, effluxion of time, obsolescence, expiration of legal rights or any other cause.
2. The process of writing off intangible assets is termed as **amortisation**.
3. **Estimated life** generally means that for how many years or hours an asset could be used in business with ordinary repairs for generating revenues.
4. The **salvage value** of the asset is that value which is estimated to be realised on account of the sale of the asset at the end of its useful life.
5. Under **Straight line** method, the depreciation is charged on the uniform basis year after year.

5.15 REFERENCES/SUGGESTED READINGS

1. S.N. Maheshwari : Advanced Accountancy
2. R.L. Gupta : Advanced Accountancy
3. M.C. Sukhla and T.S. Grewal : Advanced Accounts
4. P.C. Tulsian : Financial Accounting.



Subject: Accounting for Managers	
Course Code: MBA-104	Author: Dr. N. S. Malik
Lesson: 6	Vetter: Dr. Karam Pal
UNDERSTANDING AND ANALYSING FINANCIAL STATEMENTS OF COMPANIES	

STRUCTURE

- 6.0 Learning Objective
- 6.1 Introduction
- 6.2 Financial Statements
 - 6.2.1 Balance Sheet
 - 6.2.2 Profit and Loss Account
- 6.3 Financial Statement Analysis (FSA)
 - 6.3.1 Objectives of FSA
 - 6.3.2 Types of Financial Analysis
- 6.4 Methodical Presentation of Financial Statement Analysis
- 6.5 Techniques /Tools of Financial Statement Analysis
 - 6.5.1 Comparative Financial Statements (CFS)
 - 6.5.2 Common Size Statements (CSF)
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- 6.8 Keywords
- 6.9 Self-Assessment Test
- 6.10 Answers to Check Your Progress
- 6.11 References/ Suggested Readings

6.0 LEARNING OBJECTIVE

After reading the lesson, you should be able to :

- Define financial statement and explain different types of financial statements.



- Describe the various tools/techniques of financial statement analysis.

6.1 INTRODUCTION

Financial statements are an important source of information for evaluating the performance and prospects of a firm. If properly analyzed and interpreted, financial statements can provide valuable insights into a firm's performance. Analysis of financial statements is of interest to lenders (short term as well as long term), investors, security analysts, managers, and others. Financial statement analysis may be done for a variety of purposes, which may range from a simple analysis of the short-term liquidity position of the firm to a comprehensive assessment of the strengths and weaknesses of the firm in various areas. It is helpful in assessing corporate excellence, judging creditworthiness, forecasting bond ratings, evaluating intrinsic value of equity shares, predicting bankruptcy, and assessing market risk.

6.2 FINANCIAL STATEMENTS

Managers, shareholders, creditors and other interested groups seek answers to the following questions about a firm: What is the financial position of firm at a given point of time? How has the firm performed financially over a given period of time? What have been the sources and uses of cash over a given period? To answer these questions, the accountant prepares two principal statements, the balance sheet and the profit and loss account, and an ancillary statement, the cash flow statement.

6.2.1 Balance Sheet

The balance sheet shows the financial condition of a business at a given point of time. As per the Companies Act, the balance sheet of a company shall be in either the account (horizontal) form or the report (vertical) form. Exhibit 6.1 shows the balance sheet of Horizon Limited as on March 31, 2017 cast in the account as well as the report form. While the report form is most commonly used by companies, it is more convenient to explain the contents of the balance sheet of Horizon Limited, cast in the account form, as given Exhibit 6.2.

Structure of Balance Sheet as per the Companies Act

Exhibit 6.1 Account Form

Liabilities

Share capital

Reserves and surplus

Assets

Fixed assets

Investments



Unsecured loans	Current assets, loans and advances
Current liabilities and provisions	Current assets
Current liabilities	Loans and advances
Provisions	Miscellaneous expenditure and losses

Exhibit 6.2 Report Form

I Sources of Funds

- (1) Shareholders funds
 - (a) Share capital
 - (b) Reserves & surplus
- (2) Loan funds
 - (a) Secured loans
 - (b) Unsecured loans

II Application of Funds

- (1) Fixed assets
- (2) Investments
- (3) Current assets, loans and advances
 - Less: Current liabilities and provisions
 - Net current assets
- (4) Miscellaneous expenditure and losses.

6.2.2 Profit and Loss Account

The Companies Act has prescribed a standard form for the balance sheet, but none for the profit and loss account. However, the Companies Act does require that the information provided should be adequate to reflect a true and fair picture of the operations of the company for the accounting period. The Companies Act has also specified that the profit and loss account must show specific information as required by Schedule IV. The profit and loss account, like the balance sheet, may be presented in the account form or the report form. Typically, companies employ the report form. The report form statement may be a single-step statement or a multi-step statement. In a single step statement, all revenue items are recorded first, then the expense items are shown and finally the net profit is given. While a single step profit and loss account aggregates all revenues and



expenses, a multi-step profit and loss account provides disaggregated information. Further, instead of showing only the final profit measure, viz., the profit after tax figure, it presents profit measures at intermediate stages as well.

- Net sales
- Cost of goods sold
- Gross profit
- Operating expenses
- Operating profit
- Non-operating surplus/deficit
- Profit before interest and tax
- Interest
- Profit before tax
- Tax
- Profit after tax.

6.3 FINANCIAL STATEMENTS ANALYSIS

Financial Statements Analysis (FSA) refers to the process of the critical examination of the financial information contained in the financial statements in order to understand and make decisions regarding the operations of the firm. Financial Statement Analysis is basically a study of the relationship among various financial facts and figures as given in a set of financial statements. The basic financial statements i.e. the Balance Sheet and the Income Statement, already discussed contain a whole lot of historical data. The complex figures as given in these financial statements are dissected/broken up into simple and valuables elements and significant relationships are established between the elements of the same statement or different financial statements. This process of dissection, establishing relationships and interpretation thereof to understand the working and financial position of a firm is called the Financial Statement Analysis. Thus, Financial Statement Analysis is the process of establishing and identifying the financial weaknesses and strength of the firm. It is indicative of two aspects of a firm i.e. the profitability and the financial position and it is what is known as the objectives of the Financial Statement Analysis.



6.3.1 Objectives of the FSA

Broadly, the objective of the Financial Statement Analysis is to understand the information contained in financial statements with a view to know the weaknesses and strength of the firm and to make a forecast about the future prospects of the firm and thereby enabling the financial analyst to take different decisions regarding the operations of the firm. The objectives of the Financial Statement Analysis can be identified as:

- To assess the present profitability and operating efficiency of the firm as a whole as well as for its different departments and segments.
- To find out the relative importance of different components of the financial position of the firm.
- To identify the reasons for change in the profitability/financial position of the firm, and
- To assess the short term as well as the long term liquidity position of the firm.

6.3.2 Types of Financial Analysis

Financial analysis can be classified into different categories depending upon (1) the material used, and (2) the modus operandi of analysis.

1. **On the Basis of Material Used:** Under this category the financial analysis can be of two types: a) External Analysis; b) Internal Analysis
 - a. **External Analysis:** The outsiders to the business carry out this kind of analysis, which includes investors, credit agencies, government agencies and other creditors who have no access to the internal records of the company. In the recent times this analysis has gathered momentum towards better corporate governance and government regulations for more detailed disclosure of information by the companies in their financial statements.
 - b. **Internal Analysis:** In contrary to the above, this analysis is done by those who have access to the books of accounts and other information related to the business. The analysis is done depending upon the objective to be achieved through this analysis.
2. **On the basis of Modus Operandi:** In this case too, the financial analysis can be of two types: a) Horizontal Analysis; b) Vertical Analysis
 - a **Horizontal Analysis:** Under this, financial statements for a number of years are reviewed and analyzed. The current year's figures are compared with standard or base year.



b Vertical Analysis: Under this type of analysis, a study is made of the quantitative relationship of the various items in financial statements on a particular date. For example, the ratios of different items of costs for a particular period may be calculated with the sales for that period. These types of financial analysis are useful in comparing the performance of several companies in the same group or divisions or departments in the same company.

In addition to above, the Financial Statement Analysis for a firm can be undertaken in different ways. There is 'the best' technique of the Financial Statement Analysis, which can be applied to all the firms under all the situations. The type of the Financial Statement Analysis undertaken depends upon the person doing the Financial Statement Analysis and the purpose of which the Financial Statement Analysis has been undertaken. Different person/parties may undertake the Financial Statement Analysis for different purposes. The persons/parties, who are usually interested in the Financial Statement Analysis, may be the shareholders, the creditors, the financial institutions, the investors and the management itself. The Financial Statement Analysis can be classified into different categories as follows: a) Internal and External Financial Statement Analysis; b) Dynamic and Static Financial Statement Analysis

a) Internal and External FSA: The Financial Statement Analysis is said to be internal when it is done by a person who has access to the books of the account and other related information of the firm. This type of Financial Statement Analysis is conducted for measuring the operational and managerial efficiency at different hierarchy levels of the firm. This type of analysis is quite comprehensive and reliable. In order to undertake internal Financial Statement Analysis, either an employee of the same firm or an outside agency may be entrusted the responsibility. External Financial Statement Analysis, on the other hand, is one, which is conducted by an outsider without having any access to the basic accounting record of the firm. These outsiders may be the creditors, the investors, the shareholders, the credit rating agencies etc. The external Financial Statement Analysis is dependent on the published financial data of the firm and consequently can serve only limited purpose.

b) Dynamic and Static Financial Statement Analysis: The financial statement Analysis is said to be dynamic if it covers a period of several years. Financial data/information for different years is incorporated in the financial statement analysis to assess the progress of the firm. This type of financial statement analysis is also called the horizontal analysis. The dynamic



financial statement analysis is useful for long-term trend analysis and planning. In dynamic financial statement analysis, the figures/data for a year are placed and compared with the figures/data for several other years and changes from 1 year to another are identified. Since, the dynamic analysis covers a period of more than 1 year (may be up to 5 years or 10 years), is given a considerable insight into areas of financial weaknesses and strength of the firm. On the other hand, the static Financial Statement Analysis covers a period of 1 year only and the analysis is made on the basis of only one set of financial statements. So, it is study in terms of information at a particular date only. It is also called vertical Financial Statement Analysis. Impliedly, the static Financial Statement Analysis fails to incorporate the periodic changes and therefore, may not be very conducive to a proper understanding of the financial position of the firm. It may be noted that both the dynamic and static Financial Statement Analysis should be conducted simultaneously as both are indispensable for understanding the profitability and financial position of the firm.

On the basis of the above discussion, it can be said that Financial Statement Analysis investigative and thought provoking process in nature. The basic objective of Financial Statement Analysis is financial planning and forecasting on the basis of meaningful interpretation of the financial information. It is forward looking exercise. Since, decisions are going to be taken on the basis of the Financial Statement Analysis, the analyst must be careful, precise, analytical, objective and intelligent enough to undertake the Financial Statement Analysis in a systematic way.

6.4 METHODOICAL PRESENTATION TO FINANCIAL STATEMENT ANALYSIS

The financial statements usually present the financial data in a traditional form. However, in order to make meaningful and convenient analysis, the presentation of data may be modified and suitably rearranged. In the modified form, the items of a statement are presented in a vertical form and in a particular sequence only. However, it must be noted that this modified form of the financial statements is only a matter of convenience and not a compulsory requirement and therefore, there is no standard form of methodical presentation. The Financial Statement Analysis can be undertaken even without such modification but not so conveniently. In methodical presentation, the financial information can be presented even side by side for inter-firm



comparison or for dynamic Financial Statement Analysis. A set of methodical presentation of the Income Statement and the Balance Sheet are given in the Table 6.1 and 6.2 respectively.

Table 6.1: Income Statement (Methodical presentation)
INCOME STATEMENT FOR THE YEAR ENDING.....

		Amount	Amount
Sales			
Cash sales		*****	
Credit sales		*****	
Less: Sales return		*****	
Net sales	(1)		*****
Less: Cost of good sold:			
Opening stock		*****	
+ Purchases		*****	
+Manufacturing expenses		*****	
+ Direct expenses		*****	
- Closing stock		*****	
Total cost of goods sold	(2)	*****	*****
Gross Profit	(3)		*****
Less: Operating expenses : (4)			
Selling expenses		*****	
Administrative expenses		*****	
Depreciation		*****	*****
Operating profit	(5)		*****
Add: Non Operating Income			*****
Less: Non Operating Expenses			*****
Profit before Interest & Taxes(6)		*****	*****
Less : Interest Charges:	(7)		
Interest on Loans		*****	
Interest on Debenture		*****	*****
Profit before tax (6-7) (8)			*****



Less: Provision for tax	(9)	*****
Net Profit	(10)	*****

Table 6.2: The balance Sheet (Methodical presentation).

BALANCE SHEET AS ON.....

	Amount	Amount
Preference Share Capital	*****	
Equity Share Capital	*****	
Total Share Capital	(1) *****	*****
Add: Capital Reserve	*****	
General Reserve	*****	
Share Premium A/c	*****	
Capital Redemption Reserve A/c	*****	
Profit & Loss A/c	*****	*****
Less: Preliminary Expenses	*****	
Accumulated Losses	*****	*****
Shareholders Fund	(2)	*****
Add: Long Term Loans	*****	
Debentures	*****	*****
Capital Employed	(3)	*****

Represented by:

Fixed Assets

Land & Building	*****
Plant & Machinery	*****
Furniture & Fixture	*****
Gross Block	*****
Less : Depreciation	*****
Fixed Assets (Net)	(4) *****



Working Capital

Cash and Bank	*****	
Receivable	*****	
Marketable Securities	*****	_____
Liquid Assets	(5) *****	
+ Inventories		*****
Total Current Assets (6)	*****	_____
Trade Creditors	*****	
Bills Payable	*****	
Expenses Outstanding	*****	
Provision for Tax		*****
Quick Liabilities	(7) *****	
+ Bank Overdraft		*****
Total Current Liabilities	(8) *****	_____
Net Working Capital (6-8)	(9)	*****
Total Assets (4+9)	(10)	*****

6.5 TECHNIQUES/TOOLS OF THE FINANCIAL STATEMENT ANALYSIS

As already discussed, that the Financial Statement Analysis can be undertaken by different persons and for different purposes, therefore, the methodology adopted for the Financial Statement Analysis may be varying from the one situation to another. However, the following are some of the common techniques of the Financial Statement Analysis: a) Comparative financial statements. (b) Common-size financial statements, (c) Trend percentages analysis, and (d) Ratio Analysis. The last techniques i.e. the ratio analysis is the most common, comprehensive and powerful tool of the Financial Statement Analysis. For the sake of proper understanding, all these techniques have been discussed in detail as follows:

6.5.1 Comparative Financial Statements (CFS)

In CFS, two or more Balance Sheet and/or the Income Statement of a firm are presented simultaneously in columnar form. The financial data for two or more years are placed and presented in adjacent columns and thereby the financial data is provided a times perspective in



order to facilitate periodic comparison. In Comparative Financial Statement, the Balance Sheet and the Income Statement for number of years are presented in condensed form for year-to-year comparison and to exhibit the magnitude and direction of changes.

The preparation of the Comparative Financial Statement is based on the premise that a statement covering a period of a number of years is more meaningful and significant than for a single year only, and that the financial statements for one period represent only 1 phase of the long and continuous history of the firm. Nowadays, most of the published Annual Reports of the companies provide important statistical information about the company in condensed form for the last so many years. The presentation of such data enhances the usefulness of these reports and brings out more clearly the nature and trends of changes affecting the profitability and financial position of the firm.

So, the Comparative Financial Statement helps a financial analyst in horizontal analysis of the firm and in establishing operating and positional trend of the firm. The Comparative Financial Statement may be prepared to show the absolute amount of different items in monetary terms, the amount of periodic changes in monetary terms and the percentages of periodic changes to reveal the proportionate changes. The Comparative Financial Statement can be prepared for both the Balance Sheet and Income Statement.

Comparative Income Statement: A Comparative Balance Sheet shows the figures of different items of the ISs of the firm in absolute terms, the absolute changes from one period to another and if desired, the changes in percentage form. The Comparative Balance Sheet is helpful in deriving meaningful conclusions regarding changes in sales volume, cost of goods sold, different expense items etc. From the Comparative Balance Sheet, a financial analyst can quickly ascertain whether sales are increasing or decreasing and by how much amount or by how much percentage. Similarly, analysis can be made for other items also.

Comparative Balance Sheet: The Comparative Balance Sheet shows the different assets and liabilities of the firm on different dates to make comparisons of absolute balances and also of changes if any, from one date to another. The Comparative Balance Sheet may be helpful in analyzing and evaluating the financial position of the firm over a period of number of years. The preparation of Comparative Financial Statements can be explained with the help of Example 6.1.



Example 6.1: Following are the Income Statement and Balance Sheet of ABC & Co. for the year 2016 and 2017, Prepare the Comparative Balance Sheet and Comparative Income Statement for these two years.

Income Statements for the year 2016 and 2017

(Figures in `)

Particulars	2016	2017	Particulars	2016	2017
To Cost of good sold	300000	375000	By Net Sales	400000	500000
To General Expenses	10000	10000			
To Selling Expenses	15000	20000			
To Net Profit	75000	95000			
	<u>400000</u>	<u>500000</u>		<u>400000</u>	<u>500000</u>

Balance Sheets as on December 31

(Figures in `)

Liabilities	2016	2017	Assets	2016	2017
Capital	350000	350000	Land	50000	50000
Reserves	100000	122500	Building	150000	135000
Secured Loans	50000	75000	Plant	150000	135000
Creditors	100000	137000	Furniture	50000	70000
Outstanding Expenses	50000	75000	Cash	50000	70000
			Debtors	100000	150000
			Stores	100000	150000
	<u>650000</u>	<u>760000</u>		<u>650000</u>	<u>760000</u>

Solution:

**COMPARATIVE INCOME STATEMENT
FOR THE YEARS ENDING 2016 AND 2017**



(Figures in `)

Liabilities	2016	2017	Change in 2016	% change in 2017
Net Sales	400000	500000	100000	+ 25
Less cost of goods Sold	<u>300000</u>	<u>375000</u>	<u>75000</u>	<u>+ 25</u>
Gross Profit (1)	<u>100000</u>	<u>125000</u>	<u>25000</u>	<u>+ 25</u>
Less General Selling Expenses	10000	10000	----	-----
	<u>15000</u>	<u>20000</u>	<u>5000</u>	<u>+ 33.3</u>
Total Expenses (2)	<u>15000</u>	<u>30000</u>	<u>5000</u>	<u>+ 20</u>
Net Profit (1-2)	<u>75000</u>	<u>95000</u>	<u>20000</u>	<u>+ 26.7</u>

COMPARATIVE BALANCE SHEET AS ON DEC. 31

Liabilities	2016	2017	Change in 2017	% change in 2017
Land	50000	50000	----	----
Building	150000	135000	- 15000	- 10
Plant	150000	135000	-15000	- 10
Furniture	<u>50000</u>	<u>70000</u>	<u>20000</u>	<u>+ 40</u>
Total F. assets (1)	<u>400000</u>	<u>390000</u>	<u>-10000</u>	<u>- 2.5</u>
Cash	50000	70000	20000	40
Debtors	100000	150000	50000	50
Stock	<u>100000</u>	<u>150000</u>	<u>50000</u>	<u>50</u>
Total C. Assets (2)	<u>250000</u>	<u>370000</u>	<u>120000</u>	<u>48</u>
Creditors	100000	137500	37500	37.5
O/s Expenses	<u>50000</u>	<u>75000</u>	<u>25000</u>	<u>50</u>
Total Liabilities (3)	<u>150000</u>	<u>212500</u>	<u>62500</u>	<u>41.7</u>



Net Working Capital (2 - 3)	<u>100000</u>	<u>157500</u>	<u>57500</u>	<u>57.5</u>
Total Assets (1+2)	<u>650000</u>	<u>760000</u>	<u>110000</u>	<u>16.9</u>
Capital	350000	350000	-----	-----
Reserves	<u>100000</u>	<u>122500</u>	<u>22500</u>	<u>22.5</u>
Proprietor's Fund (4)	<u>450000</u>	<u>472500</u>	<u>22500</u>	<u>5</u>
Secured Loans (5)	<u>50000</u>	<u>75000</u>	<u>25000</u>	<u>50</u>
Capital Employed (4+5)	<u>500000</u>	<u>547500</u>	<u>47500</u>	<u>9.5</u>
Total Assets (1+2)	<u>650000</u>	<u>760000</u>	<u>110000</u>	<u>16.9</u>
Cap.+ Total Liabilities (3+4+5)	<u>650000</u>	<u>760000</u>	<u>110000</u>	<u>16.9</u>

Interpretation:

On the basis of Comparative Income Statement, it can be said that Gross Profit for the year 2017 has increased by 25% over the profit for the year 2016. The Net Sales during the same period has increased by 25%, which was coupled with increase in the cost of goods sold which also increased by same 25%. This means that Input/Output ratio or the production efficiency level has been maintained during 2017. The same increase of 25% in Net Sales and the Cost of goods sold has resulted in increase in Gross Profit by 25%. The increase in Net Profit is more pronounced i.e. by 26.7%. The reason for a higher increase in Net Profit is the comparatively less increase in total expenses (only 20%). The General Expenses during 2016 and 2017 were same but the increase in Selling Expenses by 33⅓% has resulted increase of total expenses by 20%. The Comparative Balance Sheet also reveals many facts about the composition of assets and the financial structure of the firm. The Fixed Assets have decreased over the period by 2.5%, though this decrease has primarily resulted by the amount of depreciation @ 10% on Buildings and Plant. However, the Current Assets have increased by 48%, this increase of 48% is too much in view of increase in Net Sales by 25% only. Moreover, Current Liabilities have increased by 41.7%. Since the increase in Current Assets is more than increase in Current Liabilities, therefore the Net Working Capital has increased by 57.5%. This clearly indicates that the Working Capital of the firm is not properly



managed. Had the increase in current assets restricted to 25% or the increase in current liabilities was also achieved at 48% or so, then the situation would not have been so alarming. However, the decrease in fixed assets has been offset by increase in Net Working Capital and consequently the total assets have increased by 16.9%. The firm has not raised any capital during the period and the increase in proprietor's funds has resulted because of increase in retained profits by 22,500. Secured Loans have also increased by 50%. The funds provided by the retained earnings and the secured loans seem to have been utilized in financing the current assets. This has, on one hand increased the short term paying capacity of the firm and on the other hand, will affect the earning capacity of the firm as the current assets are less or nonproductive. The increase in total assets by 16.9% is matched with the increase in total liabilities (proprietor's fund plus the secured loans) by 16.9%. So, the Comparative Financial Statements explains about the changes in different items of the financial statements. However, despite this revelation, the Comparative Financial Statements fails to highlight the component changes in relation to total assets or total liabilities. The Comparative Financial Statements does not throw light on the variations in each asset as a percentage of total assets for a particular period or changes in different liabilities in relation to total liabilities for that period etc. This drawback of Comparative Financial Statements is taken care of by the Common Size Statement.

6.5.2 Common Size Statement (CSS)

The Common Size Statement represents the relationship of different items of a financial statement with some common item by expressing each item as a percentage of the common item. In common size Balance Sheet, each item of the Balance Sheet is stated as a percentage of the total of the Balance Sheet. Similarly in Common size Income Statement, each item is stated as percentage of the Net Sales. The percentages for different items are computed by dividing the absolute amount of that item by the Common base (i.e. the Balance Sheet Total or the Net Sales as the case may be) and then multiplying by 100. The percentage so calculated can be easily compared with the corresponding percentages in some other period. Thus, the Common Size Statement is useful not only in intra-firm comparisons over a series of different year but also in making inter-firm comparisons for the same year or for several years. The procedure and the technique of preparation of the Common Size Statement can be explained with the help of Example 6.2.



Example 6.2. With the use of data given in the Example 6.1 prepare the Common Size BS and Common Size IS for the years 2016 & 2017.

Solution:

COMMON SIZE BALANCE SHEET

	Amount (₹)		Percentages	
Liabilities	2016	2017	2016	2017
Land	50000	50000	7.70	6.59
Building	150000	135000	23.07	17.76
Plant	150000	135000	23.07	17.76
Furniture	<u>50000</u>	<u>70000</u>	<u>7.70</u>	<u>9.21</u>
Total Fixed Assets (1)	<u>400000</u>	<u>390000</u>	<u>61.54</u>	<u>51.32</u>
Cash	50000	70000	7.70	9.20
Debtors	100000	150000	15.38	19.74
Stock	<u>100000</u>	<u>150000</u>	<u>15.38</u>	<u>19.74</u>
Total C. Assets (2)	<u>250000</u>	<u>370000</u>	<u>38.46</u>	<u>48.68</u>
Total Assets (1+2)	<u>650000</u>	<u>760000</u>	<u>100</u>	<u>100</u>
Capital	350000	350000	53.85	46.05
Reserves	<u>100000</u>	<u>122500</u>	<u>15.38</u>	<u>16.12</u>
Proprietor's Fund (3)	50000	75000	7.70	9.87
Creditor	100000	137500	15.37	18.09
O/s Expenses	<u>50000</u>	<u>75000</u>	<u>7.70</u>	<u>9.87</u>
Total Liabilities (4)	<u>200000</u>	<u>287500</u>	<u>30.77</u>	<u>37.83</u>
Total Capital + Liabilities (3+4)	<u>650000</u>	<u>760000</u>	<u>100</u>	<u>100</u>

COMMON SIZE INCOME STATEMENT

	Amount (₹)		Percentages	
	2016	2017	2016	2017



Net Sales	400000	500000	100.0	100.0
Less : Cost of goods sold	<u>300000</u>	<u>375000</u>	<u>75.0</u>	<u>75.0</u>
Gross Profit (1)	100000	125000	25.0	25.0
Less : General Expenses	10000	10000	2.5	2.0
Selling Expenses	<u>15000</u>	<u>20000</u>	<u>3.75</u>	<u>4.0</u>
Total Op. Expenses(2)	25000	30000	<u>6.25</u>	<u>6.0</u>
Net Profit (1-2)	75000	95000	18.75	19.00

Interpretation:

The Common size Balance Sheet and the Common Size Income Statement reveal that proportion of fixed assets out of total assets has reduced from 61.54% to 51.32%. Similarly, out the total liabilities the proportion of the proprietor's funds has reduced from 69.23% to 62.17% and the proportion of external liabilities has increased from 30.77% to 37.83%. Since, no new capital has been issued and the other liabilities have increased, the proportion of capital in the total financing of the firm has gone down from 53.85% to 46.05%.

Further, the Cost of goods sold as well as the Gross Profit has remained pegged at 75% and 25% of Net Sales. However, the Net Profit has increased from 18.75% to 19% of Net Sales. This is due to decrease in operating expenses from 6.25% to 6% of the Net Sales.

It can be observed that the Common Size Statement can be used for analyzing and comparing the financial position of a firm for two different periods or between two firms for the same year. This comparability was not available in the Comparative Financial Statements because of difference in firms' sizes or in different years. Of course, in order to make the Common Size Statements more meaningful, the analyst should ensure that accounting policies of different firms being compared or for different year are unchanged or not significantly different.

The Common Size Statements can be easily used for analyzing and for some real insight into operational and financial position of the firm over a period of different years. However, it may become difficult and cumbersome if the period to be covered is more than two years. The Common Size Statements does not show the variations in different items from one period to another. In horizontal analysis, the Common Size Statements may not provide sufficient



information about the changing pattern or trend of different items over years. In such a situation, the Trend Percentage Analysis can be of immense help.

6.5.3 Trend Percentage Analysis (TPA)

The Trend Percentage Analysis is a technique of studying several financial statements over a series of years. In Trend Percentage Analysis, the trend percentages are calculated for each item by taking the figure of that item for some base year as 100. So, the trend percentage is the percentage relationship, which each item of different years bears to the same item in the base year. Any year may be taken as the base year. Any year may be taken as the base year, but generally the starting/initial year is taken the base year. So, each item for base year is taken as 100 and then the same item for other years is expressed as a percentage of the base year. The Trend Percentage Analysis which can be used both for the Balance Sheet as well as the Income Statement has been explained with the help of the Example 6.3.

Example 6.3: From the following data relating to the ABC & Co. for the year 2011 to 2014, calculate the trend percentages (taking 2011 as base year).

(Figure in `)

	2011	2012	2013	2014
Net Sales	200000	190000	240000	260000
Less: Cost of goods sold	<u>120000</u>	<u>117800</u>	<u>139200</u>	<u>145600</u>
Gross Profit	80000	72200	100800	114400
Less: Expenses	<u>20000</u>	<u>19400</u>	<u>22000</u>	<u>24000</u>
Net Profit	<u>60000</u>	<u>52800</u>	<u>78800</u>	<u>90400</u>

Trend percentages

	2011	2012	2013	2014
Net Sales	100	95.0	120.0	130.0
Less: Cost of goods sold	<u>100</u>	<u>9.2</u>	<u>115.8</u>	<u>121.3</u>
Gross GXX Profit	100	90.3	126.0	143.0
Less: Expenses	<u>100</u>	<u>97.0</u>	<u>110.0</u>	<u>120.0</u>



Net Profit	<u>100</u>	<u>88.0</u>	<u>131.3</u>	<u>150.6</u>
------------	------------	-------------	--------------	--------------

Interpretation:

On the whole, the 2012 was a bad year but the recovery was made during 2013 with increase in volume as well as profits. The figures of 2012 when compared with 2011 reveal that the Sales have reduced by 5%, but the cost of goods sold and the expenses have decreased only by 1.8% and 3% respectively. This resulted in decrease in Net Profit by 12%. The position was recovered in 2013 and not only the decline was arrested but the positive growth was also visible both in 2013 and 2014. Again, the increase in Net Profit by 31.3% (2013) and 50.6% (2014) is much more than the increased in sales by 20% and 30% respectively. This again testifies that a substantial portion of the cost of goods sold and expenses is of fixed nature. So, the Trend Percentage Analysis is an important tool of historical analysis. It can be of immense help in making a comparative analysis over a series of years. The Trend Percentage Analysis provides brevity and easy readability to several financial statements as the percentages figures disclose more than the absolute figures. However, some precautions must be taken while using the Trend Percentage Analysis as a technique of the Analysis of Financial Statements as follows:

- (i) There should not be a significant and material change in accounting policies over the years. This consistency is necessary to ensure meaningful comparability.
- (ii) Proper care must be taken while selecting the base year. It must be a normal and a representative year. Generally the initial year is taken as base year, but intervening year can also be taken as the base year, if the initial year is not found to be normal year.
- (iii) The trend percentages should be analyzed vis-à-vis the absolute figure to avoid any misleading conclusions.
- (iv) If possible, the figures for different year should be adjusted for variations in price level also. For example, increase in Net Sales by 30% (from 100 in 2011 to 130 in 2014) over 3 years might have resulted primarily because of increase in selling price and not because of increase in volume.
- (v) Quite often, it may be difficult to interpret the increase or decrease in any item (in absolute terms or in percentages terms) as a desirable change or an undesirable change. For example, decrease in cash may be discouraging if it is going to affect the liquidity but may be



encouraging if it has resulted out of better cash management. Similarly, increase in inventory may result because of decrease in sales or because of necessity to maintain a minimum level of stock. In such cases, therefore, the techniques of Comparative Financial Statements, Common Size Statement and the Trend Personality Analysis may not be of much help. Financial analysts have developed another technique called the Ratio Analysis, which is discussed in lesson 11.

6.6 CHECK YOUR PROGRESS

Fill in the blanks:

1. Financial Statements are reviewed and analysed over a number of years in analysis.
2. Financial Statements usually presents the date in the traditional form.
3. Each item of the Balance Sheet is stated as a percentage of totals of the Balance Sheet in
.....
4. Any can be taken as base year in Trend Percentage Analysis.

6.7 SUMMARY

Financial Statement Analysis is required for a variety of purposes, which can range from simple analysis of short-term liquidity position to a comprehensive assessment of strengths and weaknesses of the firm. Financial Statement Analysis is a study of the relationship among various financial facts and figures as given in financial statements. Financial analysis can be classified into different categories depending upon the material used and the modus operandi of analysis. The most common techniques of the financial statement analysis are comparative financial statements, common size financial statements, trend percentages analysis and ratio analysis.

6.8 KEYWORDS

Financial Statements Analysis: It is the process of critical examination of the financial information contained in the financial statements in order to understand and make decisions regarding the operations of the firm.

Comparative Balance Sheet: It shows the different assets and liabilities of the firm on different dates to make comparisons of absolute balances.

Common Size Statement: It is the relationship of different items of a financial statement with some common item by expressing each item as a percentage of the common item.



Trend Percentage Analysis: It is a technique of studying several financial statements over a series of years.

6.9 SELF-ASSESSMENT TEST

1. What do you mean by financial statements? Explain their different types .
2. What is financial statement analysis? Explain its objectives.
3. What are the types of financial statement analysis? How an accountant in a firm can arrange them?
4. Explain the benefits of financial statement analysis to a business operating in the manufacturing sector and service sector.
5. Explain the various techniques applied for carrying out the financial statement analysis.

6.10 ANSWERS TO CHECK YOUR PROGRESS

1. Horizontal
2. Financial
3. Common Size Statement.
4. Year

6.11 REFERENCES/SUGGESTED READINGS

1. Ashish K. Bhattacharya, Principles and Practices of Cost Accounting, New Delhi: Prentice Hall of India Private Limited.
2. Charles T. Horngren, Cost Accounting, A Managerial Emphasis, Prentice Hall Inc.
3. D. T. Decoster and E. L. Schafer, Management Accounting, New York: John Willey and Sons.
4. John G. Blocker and Wettmer W. Keith, Cost Accounting, New Delhi: Tata Mc Graw Publishing Co. Ltd.



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Lesson No. 7	Vetter:

COST ACCOUNTING

STRUCTURE

- 7.0 Learning Objective
- 7.1 Introduction
- 7.2 Meaning and Nature of Cost Accountancy
- 7.3 Scope of Costing
- 7.4 Cost Accounting Vs Financial Accounting
- 7.5 Cost Accounting Vs. Management Accounting
- 7.6 Usefulness of Cost Accounting to Managers
- 7.7 Methods of Costing
- 7.8 Techniques of Costing
- 7.9 Concept of Cost
 - 7.9.1 Cost Centre and Cost Unit
 - 7.9.2 Cost Concepts
 - 7.9.3 Classification of Cost
 - 7.9.4 Components of Total Cost
 - 7.9.5 Cost Sheet
- 7.10 Check Your Progress
- 7.11 Summary
- 7.12 Keywords
- 7.13 Self-Assessment Test
- 7.14 Answer to Check Your Progress
- 7.15 References/Suggested Readings

7.0 LEARNING OBJECTIVE



After reading this lesson students must be able:

- To understand meaning, nature, scope and usefulness of costing accountancy
- To differentiate and classify the various cost concepts and
- To prepare Cost Sheets

7.1 INTRODUCTION

In the modern business world, the nature and functioning of business organizations have become very complicated. They have to serve the needs of variety of parties who are interested in the functioning of the business. These Parties constitute the owners, creditors, employees, government agencies, tax authorities, prospective investors, and last but not the least the management of the business. The business has to serve the needs of these different category of people by way of supplying various information from time to time. In order to satisfy the needs of all these group of people a sound organization of accounting system is very essential. In the ancient days the information required by those who were interested with a business organization was met by practising a system of accounting known as financial accounting system. Financial accounting is mainly concerned with preparation of two important statements, viz., income statement (or profit and loss account) and positional statement (or Balance sheet). This information served the needs of all those who are not directly associated with management of business. Thus financial accounts are concerned with external reporting as it provides information to external authorities. But management of every business organization is interested to know much more than the usual information supplied to outsiders. In order to carry out its functions of planning, decision-making and control, it requires additional cost data. The financial accounts to some extent fails to provide required cost data to management and hence a new system of accounting which could provide internal report to management was conceived of.

7.2 MEANING AND NATURE OF COST ACCOUNTANCY

Cost accountancy is a wide term. It means and includes the principles, conventions, techniques and systems which are employed in a business to plan and control the utilization of its resources. It is defined 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. It includes the



presentation of information derived therefrom for the purposes of managerial decision making"—C.I.M.A. London.

Cost accountancy is thus the science, art and practice of a cost accountant. It is a science in the sense that it is a body of systematic knowledge which a cost accountant should possess for the proper discharge of his duties and responsibilities. It is an art as it requires the ability and skill on the part of a cost accountant in applying the principles of cost accountancy to various managerial problems like price fixation, cost control, etc. Practice refers to constant efforts on the part of cost accountant in the field of cost accountancy. The theoretical knowledge alone would not enable a cost accountant, to deal with the intricacies, he should have sufficient practical training. Cost accountancy includes several subjects. These are costing, cost accounting, cost control and cost audit. These are described below :

Costing : Costing refers to the process of cost finding. It is defined as "the technique and process of ascertaining costs". It has also been defined as "the classifying, recording and appropriate allocation of expenditure for the determination of costs, the relation of these costs to sales value and the ascertainment of profitability. Thus costing consists of principles and rules which are used for determining : (a) the cost of manufacturing a product like chemical, television, etc. and (b) the cost of providing a service, i.e., electricity, transport, etc.

Cost Accounting : Cost accounting is a system by means of which costs of products or services are ascertained and controlled. It is defined as "the application of accounting and costing principles, methods and techniques in the ascertainment of costs and the analysis of savings and/or excesses as compared with previous experience or with standards".

Thus, whereas costing is simply cost finding, which can be carried out by means of memorandum statements, arithmetic process etc., cost accounting denotes the formal accounting mechanism by means of which costs are ascertained. In simple words, costing means finding out the cost of something, and cost accounting means costing using double entry book keeping methods as a basis for ascertainment of costs. However, cost accounting and costing are often used interchangeably.

Cost Control : Cost control is the function of keeping costs within prescribed limits. In other words, cost control is compelling actual costs to conform to planned costs. Amongst the various techniques used for cost control, the two most popular are budgetary control and standard costing. These will be discussed in detail in lessons 13 and 14 respectively.



Cost Audit : Cost audit is the specific application of auditing principles and procedures in the fields of cost accounting. It is defined as the verification of cost accounts and a check on the adherence to the cost accounting plan. It has thus two functions - (a) to verify that the cost accounts have been correctly maintained and compiled, and (b) to check that principles laid down have been properly followed.

7.3 SCOPE OF COSTING

Cost accounting is not applicable only to manufacturing concerns. Its applications are in fact much wider. All types of activities, manufacturing and non-manufacturing, in which monetary value is involved, should consider the use of cost accounting. Wholesale and retail businesses, banking and insurance companies, railways, airways, shipping and road transport companies, hotels, hospitals, schools, colleges and universities, all may employ cost accounting techniques to operate efficiently. It is only a matter of recognition by the management of the applicability of these concepts and techniques in their own fields of endeavour.

7.4 COST ACCOUNTING VS. FINANCIAL ACCOUNTING

Financial accounting, as pointed out previously, is concerned with recording, classifying and summarizing financial transactions pertaining to an accounting period. The basic objective is to provide a commentary to the shareholders and outside parties on the financial status of an enterprise in the form of a profit and loss account and balance sheet. The profit or loss of business operations is revealed through these statements year after year, observing the statutory requirements of the Companies Act, 1956.

Cost accounting, on the other hand, aims at providing prompt cost data for managerial planning, controlling and decision making. It offers a complete explanation as to how the scarce inputs are put to use in business. The sources of efficiency or inefficiency are revealed through periodic reports. The profit or loss relating to each job, department or product can also be found out easily. The following table 7.1 tries to draw the curtain between financial accounting and cost accounting:

Table 7.1 Difference Between Financial Accounting and Cost Accounting

Basis	Financial Accounting	Cost Accounting
Statutory Requirements	These accounts have to be prepared to the legal requirements of Companies	Maintenance of these accounts is voluntary except in certain industries where it has



	Act and Income Tax Act.	been made obligatory to keep records Act.
Purpose	The main purpose of financial accounting is to prepare profit and loss account and balance sheet for reporting to owners and outside agencies i.e., external users.	The main purpose of cost accounting is to provide detailed cost information to management i.e., internal users.
Analysis of Cost and Profit	Financial accounts reveal the profit or loss of the business as a whole during a particular period. It does not show the figures of cost and profit for individual products, departments and processes, etc.	Cost accounts show the detailed cost and profit data for each product line, department, process etc.
Periodicity of Reporting	Profit and Loss Account and Balance Sheet are prepared periodically, usually on an annual basis.	Cost reporting is a continuous process and may be daily, weekly, monthly, etc.
Control Aspect	It keeps records of financial transactions and does not attach any importance to control aspect.	It is used as a detailed system of controls. It takes the help of certain special techniques like standard costing and budgetary control.
Nature	It is concerned with historical records. The historical nature of financial accounting can be easily understood in the context of the purposes for which it was designed.	Cost accounting does not end with what has happened in the past. It extends to plans and policies to improve performance in the future.
Nature of Statements Prepared	General purpose statements like Profit and Loss Account and Balance Sheet are prepared by it.	It generates special purpose statements and reports like Report of Loss of Materials, Idle Times Report, Variance Report etc.
Reports	That is to say that financial	Cost accounting identifies the user,



	accounting must produce information that is used by many classes of people none of whom have explicitly defined information needs	discusses his problems and needs and provides tailored information.
Classification of Records	Financial accounting classifies records and analyses transactions in subjective manner i.e. according to nature of expenditure.	Cost accounting records and classifies expenditure according to the purpose for which cost is incurred.

7.5 COST ACCOUNTING Vs MANAGEMENT ACCOUNTING

Cost accounting and management accounting are both internal to an organisation. Both have, more or less, the same objective of assisting management in its planning, decision making etc. It is not worthwhile to distinguish the two inter-related disciplines as two branches of accounting. Consider what experts opine in this regard.

Dobson: Management accounting is so broad and comprehensive that it includes both financial and cost accounting.

C.T. Horngren: Cost accounting is management accounting plus a small part of financial accounting.

It is because of the overlapping nature of the two in many areas, that everyone talks of cost and management accounting as a single discipline. However, some distinctions can be drawn thus :

Table 7.2: Distinction between Cost Accounting and Management Accounting

Point of distinction	Cost accounting	Management accounting
Coverage	It deals with ascertainment, allocation, distribution and accounting aspects of costs	It is concerned with the impact and effect aspects of costs.
Position in the hierarchy	Cost accountant is generally placed at a lower level of	Management accountant assumes a superior level in the management hierarchy.



	hierarchy than a management accountant.	
Approach	Narrow, as the focus is primarily on cost data	Wider, as one may have to use certain economic and statistical data along with costing data to assist managerial decision making.
Emphasis	It lays emphasis on cost ascertainment and cost control.	It is used as a decision making technique.
Scope	The scope of cost accounting is limited to important techniques like variable costing, break-even analysis and standard costing.	It Makes use of other techniques like funds flow, ratio analysis, cash flow etc. in addition to variable costing, break-even analysis and standard costing. This includes financial accounting, tax planning and tax accounting
Focus	It focuses on short term planning. Sophisticated tools not employed for forecasting purposes.	It focuses on short range and long range planning and uses sophisticated technique in the planning and control process.
Orientation	It deals with data supplied by financial accounting, orientation is not futuristic.	Futuristic in orientation, is more predictive in nature than cost accounting.
Evolution	The evolution of cost the limitations of financial accounting.	It draws heavily on cost data and other information derived from cost accounting It is merely an extension of the managerial aspects of cost accounting.
Purpose	Its main purpose is to report current and prospective costs of product, service, department, job or process.	Its main objective is to provide all accounting information relevant for use in formulation of policies, planning, controlling, decision making etc. to ensure maximum profits.



7.6 USEFULNESS OF COST ACCOUNTING TO MANAGERS

The shortcomings inherent in financial accounting have made the management to realise the importance of cost accounting. Whatever may be the type of business, it involves expenditure on labour, materials and other items required for manufacturing and disposing of the product. Moreover, big business requires delegation of responsibility, division of labour and specialisation. Management has to avoid the possibility of waste at each stage. Management has to ensure that no machine remains idle, efficient labour gets due initiative, proper utilisation of by-products is made and costs are properly ascertained. Besides management, creditors and employees are also benefited in numerous ways by installation of a good costing system in an industrial organisation. Cost accounting increases the overall productivity of an industrial establishment and, therefore, serves as an important tool in bringing prosperity to the nation. The various advantages derived by managements on account of a good costing system can be put as follows:

1. **Useful in periods of depression and competition:** During trade depression the business cannot afford to have leakages which pass unchecked. The management should know where economies may be sought, waste eliminated and efficiency increased. The business has to wage a war for its survival. The management should know the actual cost of their products before embarking on any scheme of reducing the prices or giving tenders. Costing system facilitates this.
2. **Helps in pricing decisions :** Though economic law of supply and demand and activities of the competitors, to a great extent, determine the price of the article, cost to the producer does play an important part. The producer can take necessary guidance from his costing records.
3. **Helps in estimates :** Adequate costing records provide a reliable basis upon which tenders and estimates may be prepared. The chances of losing a contract on account of over-rating or the loss in the execution of a contract due to under-rating can be minimised. Thus, "ascertained costs provide a measure for estimates, a guide to policy, and a control over current production.
4. **Cost Accounting helps in channelizing production on right lines :** Costing makes possible for the management to distinguish between profitable and non-profitable activities. Profits can be maximised by concentrating on profitable operations and eliminating non-profitable ones.



5. **Helps in reducing wastage :** As it is possible to know the cost of the article at every stage, it becomes possible to check various forms of waste, such as of time, expense etc., or in the use of machinery, equipment and tools.
6. **Costing makes comparison possible :** If the costing records are regularly kept, comparative cost data for different periods and various volumes of production will be available. It will help the management in forming future lines of action.
7. **Provides data for periodical profit and loss accounts :** Adequate costing records supply to the management such data as may be necessary for preparation of profit and loss account and balance sheet, at such intervals as may be desired by the management. It also explains in detail the sources of profit or loss revealed by the financial accounts, thus helps in presentation of better information before the management.
8. **Costing results into increased efficiency :** Losses due to wastage of materials, idle time of workers, poor supervision etc. will be disclosed if the various operations involved in manufacturing a product are studied by a cost accountant. The efficiency can be measured and costs controlled and through it various devices can be framed to increase the efficiency.
9. **Costing helps in inventory control and cost reduction:** Costing furnishes control which management requires in respect of stock of materials, work-in-progress and finished goods. Costs can be reduced in the long-run when alternates are tried. This is particularly important in the present-day content of global competition. Cost accounting has assumed special significance beyond cost control this way.
10. **Helps in increasing productivity :** Productivity of material and labour is required to be increased to have growth and more profitability in the organisation. Costing renders great assistance in measuring productivity and suggest ways to improve it.

7.7 METHODS OF COSTING

The basic principles of ascertaining costs are the same in every system of cost accounting. However, the methods of analysing and presenting the cost may vary from industry to industry. The method to be used in collecting and presenting costs will depend upon the nature of production. Basically there are two methods of costing, namely. Job costing and Process costing.

- 1) **Job costing :** Job costing is used where production is not repetitive and is done against orders. The work is usually carried out within the factory. Each job is treated as a distinct unit, and



related costs are recorded separately. This type of costing is suitable to printers, machine tool manufacturers, job foundries, furniture manufactures etc. The following methods are commonly associated with job costing:

Batch costing : Where the cost of a group of product is ascertained, it is called 'batch costing'. In this case a batch of similar products is treated as a job. Costs are collected according to batch order number and the total cost is divided by the numbers in a batch to find the unit cost of each product. Batch costing is generally followed in general engineering factories which produce components in convenient batches, biscuit factories, bakeries and pharmaceutical industries.

Contract costing : A contract is a big job and, hence, takes a longer time to complete. For each individual contract, account is kept to record related expenses in a separate manner. It is usually followed by concerns involved in construction work e.g. building roads, bridge and buildings etc.

- 2) **Process Costing :** Where an article has to undergo distinct processes before completion, it is often desirable to find out the cost of that article at each process. A separate account for each process is opened and all expenses are charged thereon. The cost of the product at each stage is, thus, accounted for. The output of one process becomes the input to the next process. Hence, the process cost per unit in different processes is added to find out the total cost per unit at the end. Process costing is often found in such industries as chemicals, oil, textiles, plastics, paints, rubber, food processors, flour, glass, cement, mining and meat packing. The following methods are used in process costing :

Output/Unit Costing: This method is followed by concerns producing a single article or a few articles which are identical and capable of being expressed in simple, quantitative units. This is used in industries like mines, quarries, oil drilling, cement works, breweries, brick works etc. for example, a tonne of coal in collieries, one thousand bricks in brick works etc. The object here is to find out the cost per unit of output and the cost of each item of such cost. A cost sheet is prepared for a definite period. The cost per unit is calculated by dividing the total expenditure incurred during a given period by the number of units produced during the same period.



Operating Costing: This method is applicable where services are rendered rather than goods produced. The procedure is same as in the case of unit costing. The total expenses of the operation are divided by the units and cost per unit of service is arrived at. This is followed in transport undertakings, municipalities, hospitals, hotels etc. In this method each operation at each stage of production or process is separately identified and costed. The procedure is somewhat similar to the one followed in process costing. Process costing involves the costing of large areas of activity whereas operation costing is confined to every minute operation of each process. This method is followed in industries with a continuous flow of work, producing articles of a standard nature, and which pass through several distinct operations in a sequence to completion. Since this method provides for a minute analysis of cost, it ensures greater accuracy and better control of costs. The costs of each operation per unit and cost per unit upto each stage of operation can be calculated quite easily. This method is in force in industries where toys, leather and engineering goods are manufactured.

- 3) **Multiple Costing:** Some products are so complex that no single system of costing is applicable. Where a concern manufactures a number of components to be assembled into a complete article, no one method would be suitable, as each component differs from the other in respect of materials and the manufacturing process. In such cases, it is necessary to find out the cost of each component and also the final product by combining the various methods discussed above. This type of costing is followed to cost such products as radios, aeroplanes, cycles, watches, machine tools, refrigerators, electric motors etc.
- 4) **Departmental Costing :** When costs are ascertained department by department, such a method is called 'departmental costing'. Where the factory is divided into a number of departments, this method is followed. The total cost of each department is ascertained and divided by the total units produced in that department in order to obtain the cost per unit. This method is followed by departmental stores, publishing houses etc.

7.8 TECHNIQUES OF COSTING

In addition to the different costing methods, various techniques are also used to find the costs. These techniques may be grouped under the following heads:

Historical Absorption Costing: It is the ascertainment of costs after they have been incurred. It is defined as the practice of charging all costs, both variable and fixed, to operations, process or



products. It is also known as traditional costing. Since costs are ascertained after they have been incurred, it does not help in exercising control over costs. However, It is useful in submitting tenders, preparing job estimates etc.

Marginal Costing: It refers to the ascertainment of costs by differentiating between fixed costs and variable costs. In this technique fixed costs are not treated as product costs. They are recovered from the contribution (the difference between sales and variable cost of sales). The marginal or variable cost of sales includes direct material, direct wages, direct expenses and variable overhead. This technique helps management in taking important policy decisions such as product pricing in times of competition, whether to make or not, selection of product mix etc.

Differential Costing: Differential cost is the difference in total cost between alternatives evaluated to assist decision making. This technique draws the curtain between variable costs and fixed costs. It takes into consideration fixed costs also (unlike marginal costing) for decision making under certain circumstances. This technique considers all the revenue and cost differences amongst the alternative courses of action to assist management in arriving at an appropriate decision.

Standard Costing: It refers to the ascertainment and use of standard costs and the measurement and analysis of variances. Standard cost is a predetermined cost which is computed in advance of production on the basis of a specification of all factors affecting costs. The standards are fixed for each element of cost. To find out variances, the standard costs are compared with actual costs. The variances are investigated later on and wherever necessary, rectification steps are initiated promptly. The technique helps in measuring the efficiency of operations from time to time.

Practical Difficulties in Installing Costing System : Apart from technical costing problems, a cost accountant is confronted with certain practical difficulties in installing a costing system. These are:

1. **Lack of support of management:** In order to make the costing system a success, it must have the whole-hearted support of every member of the management. Many a time, the costing system is introduced at the behest of the Managing Director or the Financial Director without the support of functional managers. They view the system as an interference in their work and do not make use of the system. Before the system is installed, the cost accountant should ensure that the management is fully committed to the costing system. A sense of cost



consciousness should be created in their minds by explaining them that the system is for their benefit. A cost manual should be prepared and distributed to them giving the details and functions of the system.

2. **Resistance from the accounting staff** : The existing accounting staff may not welcome the new system. This may be because they look with suspicion at a system which is not known to them. The co-operation of the employees should be sought by convincing them that the system is needed to supplement the financial accounting system and that it is for the betterment of all.
3. **Non-cooperation of Working and Supervisory Staff** : Correct activity data which is supplied by supervisory staff and workers is necessary for a costing system. They may not co-operate and resist the additional paper work arising as a result of the introduction of the system. Such resistance generally arises out of ignorance. Proper education should be given to the staff regarding benefits of the system and the important roles they have to play to make it successful.
4. **Shortage of Trained Staff** : In the initial stages, there may be shortage of trained costing staff. The staff should be properly trained so that costing department can run efficiently.

7.9 CONCEPT OF COST

The scope of term 'cost' is extremely broad and general. It is therefore, not easy to define or explain this term without leaving any doubt concerning its meaning. Cost accountants, economists and others develop the concept of cost according to their needs. This concept should, therefore, be studied in relation to its purpose and use. Some of the definitions of 'cost' are reproduced below:

Cost is "the amount of expenditure (actual or notional) incurred on or attributable to a given thing". (C.I.M.A. London). Cost is "an exchange price, a foregoing, a sacrifice made to secure benefit". (A tentative set of Broad Accounting Principles for Business Enterprises).

Cost should be distinguished from expenses and losses though in practice the terms cost and expenses are sometimes used synonymously. An expense is defined as including "all expired costs which are deductible from revenue". When a portion of the service potential of an asset is consumed, that portion of its cost is re-classified as an expense.

7.9.1 Cost Centre and Cost Unit

Cost is ascertained by cost centres or cost units or by both. The terms are discussed below:



Cost Centre: A cost centre is "a location, person, or item of equipment or group of these for which costs may be ascertained and used for the purpose of control". Thus, a cost centre refers to a section of the business to which costs can be charged. It may be a location (a department, a sales area), an item of equipment (a machine, a delivery van), a person (a salesman, a machine operator) or a group of these (two automatic machines operated by one workman). A cost centre is primarily of two types:

- a) **Personal cost centre**—which consists of a person or a group of persons.
- b) **Impersonal cost centre**— which consists of a location or an item of equipment or group of these.

From functional point of view, cost centres may be of the following two types:

- a) **Production cost centre**—those cost centres where actual production work takes place. Examples are melting shop, machine shop, welding shop, finishing shop, etc.
- b) **Service cost centre**— those cost centres which are ancillary to and render services to production cost centres. Examples of service cost centres are power house, tool room, stores department, repair shop, canteen, etc. Cost incurred in service cost centres are of indirect type.

Cost accountant sets up cost centres to enable him to ascertain the costs he needs to know. A cost centre is charged with all the costs that relate to it, eg.. if a cost centre is a machine, it will be charged with the costs of power, light, depreciation and its share of rent etc. The purpose of ascertaining the cost of a cost centre is cost control. The person in charge of a cost centre is held responsible for the control of cost of that centre.

The number of cost centres and the size of each vary from one undertaking to another. It all depends upon the expenditure involved and requirements of the management of the purpose of cost control. A large number of cost centres tend to be expensive but having too few cost centres defeat the very purpose of control.

Cost Unit: It has been seen above that cost centres help in ascertaining the costs by location, equipment or person. Cost unit is a step further which breaks up the cost into smaller sub-divisions and helps in ascertaining the cost of saleable products or services.

A cost unit is a "unit of product, service or time in relation to which cost may be ascertained or expressed", (C.I.M.A. London). Cost units are the 'things' that the business is set up to provide of



which cost is ascertained. For example, in a sugar mill, the cost per tonne of sugar may be ascertained, in a textile mill the cost per-metre of cloth may be ascertained. Thus a tonne of sugar and 'metre' of cloth are cost units. In short, cost unit is unit of measurement of cost.

All sorts of cost units are adopted, the criterion for adoption being the applicability of particular cost unit to the circumstances under consideration. Broadly, cost unit may be:

- (i) **Unit of Production** e.g. a metre of cloth, a ream of paper, a tonne of steel, a metre of cable, etc. or
- (ii) **Unit of Service** e.g. passenger miles, cinema seats, consulting hours etc.

A few more examples of cost units in various Industries are given below:

Industry	Cost Unit
Bricks	1000 bricks
Cement	Tonne
Chemicals	Tonne, kilogram, litre, gallon, etc.
Carpets	Square foot
Electricity	Kilowatt hour (KWH)
Transport	Passenger kilometer or tonne kilometre
Printing Press	Thousand copies
Cotton or jute	Bale
Timber	Cubic foot
Mines	Tonne
Hotel	Room per day
Shoes	Pair or dozen pairs

Note: The cost units and cost centres should be those which are readily understood and accepted by all concerned.

7.9.2 Cost Concepts

The clear understanding of various cost concepts is essential for the study of cost accounting and cost systems. Description of these concepts follows now.



Product and period costs - The product cost is aggregate of costs that are associated with a unit of product. Such costs may or may not include an element of overheads depending upon the type of costing system in force- absorption or direct. Product costs are related to goods produced or purchased for re-sale and are initially identifiable as part of inventory. These product or inventory costs become expenses in the form of cost of goods sold only when the inventory is sold. Product cost is associated with unit of output. The costs of inputs in forming the product viz., the direct material, direct labour, factory overhead constitute the product costs. The period cost is a cost that tends to be unaffected by changes in level of activity during a given period of time. Period cost is associated with a time period rather than manufacturing activity and these costs are deducted as expenses during the current period without having been previously classified as product costs. Selling and distribution costs are period costs and are deducted from the revenue without their being regarded as part of the inventory cost.

Common and joint costs : The common cost is an indirect cost that is incurred for the general benefit of a number of departments or for the whole enterprise and which is necessary for present and future operations. The joint costs are the cost of either a single process or a series of processes that simultaneously produce two or more products of significant relative sales value.

Short-run and long-run costs : The short-run costs are costs that vary with output when fixed plant and capital equipment remain the same and become relevant when a firm has to decide whether or not to produce more in the immediate future. The long-run-costs are those which vary with output when all input factors including plant and equipment vary and become relevant when the firm has to decide whether to set up a new plant or to expand the existing one.

Past and future cost : The past costs are actual costs incurred in the past and are generally contained in the financial accounts. These costs report past events and the time lag between event and its reporting makes the information out of date and irrelevant for decision-making. These costs will just act as a guide for future course of action.

The future costs are costs expected to be incurred at a later date and are the only costs that matter for managerial decisions because they are subject to management control. Future costs are relevant for managerial decision making in cost control, profit projections, appraisal of capital expenditure, introduction of new products, expansion programmes and pricing etc.



Controllable and non-controllable costs: The concept of responsibility accounting leads directly to the classification of costs as controllable or uncontrollable. The controllable cost is a cost chargeable to a budget or cost centre, which can be influenced by the actions of the person in whom control the centre is vested. It is always not possible to predetermine responsibility, because the reason for deviation from expected performance may only become evident later. For example excessive scrap may arise from inadequate supervision or from latent defect in purchased material. The controllable cost is a cost that can be influenced and regulated during a given time span by the actions of a particular individual within an organisation.

The controllability of cost depends upon the level of responsibility under consideration. Direct costs are generally controllable by the shop level management. The uncontrollable cost is a cost that is beyond the control (i.e. uninfluenced by actions) of a given individual during a given period of time. The distinction between controllable and uncontrollable costs are not very sharp and may be left to individual judgement. Some expenditure which may be uncontrollable on the short-term basis can be controllable on long-term basis, There are certain costs which are really difficult to control due to the following reasons.

1. Physical hazards arising due to flood, fire, strike, lockout etc.
2. Economic risks such as increased competition, change in fashion or model, higher prices of inputs, import restrictions, etc.
3. Political risk like change in Government policy, political unrests, war etc.
4. Technological risk such as change in design, know-how etc.

Replacement and Historical Costs: The Replacement costs and Historical costs are two methods for carrying assets in the balance sheet and establishing the amounts of costs that are used to determine income.

The Replacement cost is a cost at which material identical to that is to be replaced could be purchased at the date of valuation (as distinct from actual cost price at the date of purchase). The replacement cost is a cost of replacing an asset at any given point of time either at present or the future (excluding any element attributable to improvement).

The Historical cost is the actual cost, determined after the event. Historical cost valuation states costs of plant and materials, for example, at the price originally paid for them whereas replacement cost valuation states the costs at prices that would have to be paid currently. Costs reported by



conventional financial accounts are based on historical valuations. But during periods of changing price level, historical costs may not be correct basis for projecting future costs. Naturally historical costs must be adjusted to reflect current or future price levels.

Out of pocket and Book Costs : The out of *pocket cost* is a cost that will necessitate a corresponding outflow of cash. The costs involving cash outlay or payment to other parties are termed as out of pocket costs. Book costs are those which do not require current cash payments. Depreciation, is a notional cost in which no cash transaction is involved. The distinction between out of pocket costs and book costs primarily shows how costs affect the cash position. Out of pocket costs are relevant in some decision making problems such as fluctuation of prices during recession, make or buy decisions etc. Book costs can be converted into out of pocket costs by selling the assets and having item on hire. Rent would then replace depreciation and interest.

Imputed and Sunk Costs : The *imputed cost* is a cost which does not involve actual cash outlay, which are used only for the purpose of decision making and performance evaluation. Imputed cost is a hypothetical cost from the point of view of financial accounting. Interest on capital is common type of imputed cost. No actual payment of interest is made but the basic concept is that, had the funds been invested elsewhere they would have earned interest. Thus, imputed costs are a type of opportunity costs.

The Sunk costs are those costs that have been invested in a project and which will not be recovered if the project is terminated. The sunk cost is one for which the expenditure has taken place in the past. This cost is not affected by a particular decision under consideration. Sunk costs are always results of decisions taken in the past. This cost cannot be changed by any decision in future. Investment in plant and machinery as soon as it is installed its cost is sunk cost and is not relevant for decisions. Amortization of past expenses e.g. depreciation is sunk cost. Sunk costs will remain the same irrespective of the alternative selected. Thus, it need not be considered by the management in evaluating the alternatives as it is common to all of them. It is important to observe that an unavoidable cost may not be a sunk cost. The Managing Director's salary is generally unavoidable and also out of pocket but not sunk cost.

Relevant and Irrelevant Costs: The *relevant cost* is a cost appropriate in aiding to make specific management decisions. Business decisions involve planning for future and consideration of several alternative courses of action. In this process the costs which are affected by the decisions are future



costs. Such costs are called relevant costs because they are pertinent to the decisions in hand. The cost is said to be relevant if it helps the manager in taking a right decision in furtherance of the company's objectives.

Opportunity and Incremental Costs: The *opportunity cost* is the value of a benefit sacrificed in favour of an alternative course of action. It is the maximum amount that could be obtained at any given point of time if a resource was sold or put to the most valuable alternative use that would be practicable. The opportunity cost of a good or service is measured in terms of revenue which could have been earned by employing that good or service in some other alternative uses. Opportunity cost can be defined as the revenue forgone by not making the best alternative use. Opportunity cost is the prospective change in cost following the adoption of an alternative machine process, raw materials etc. It is the cost of opportunity lost by diversion of an input factor from use to another. The *Incremental cost* is the extra cost of taking one course of action rather than another. It is also called as different cost. The incremental cost is the additional cost due to a change in the level of nature of business activity. The change may take several forms e.g., changing the channel of distribution, adding a new machine, replacing a machine by a better machine, execution of export order etc. Incremental costs will be different in case of different alternatives. Hence, incremental costs are relevant to the management in the analysis for decision making.

Marginal cost: The *marginal cost* is the variable cost of one unit of a product or a service i.e., a cost which would be avoided if the unit was not produced or provided. In this context a unit is usually either a single article or a standard measure such as litre or kilogram, but may in certain circumstances be an operation, process or part of an organisation. The marginal cost is the amount at any given volume of output by which aggregate costs are changed if the volume of output is increased or decreased by one unit. The marginal costing technique is the process of ascertaining marginal costs and of the effects of changes in volume of type of output on profit by differentiating between fixed and variable costs.

Notional cost: The *notional cost* is a hypothetical cost taken into account in a particular situation to represent the benefit enjoyed by an entity in respect of which no actual expense is incurred.

7.9.3 Classification of Cost



The process of grouping costs according to their common characteristics is called classification of cost. It is a systematic placement of like items together according to their common features. The followings are the important ways of classifying costs.

(x) Classification According to Functions: This is a traditional classification. A business has to perform a number of functions like manufacturing, administration, selling, distribution and research. Cost may have to be ascertained for each of these functions. On this basis, costs are classified into the following groups:

Manufacturing cost: This is the cost of the sequence of operations which begins with supplying materials, labour and services and ends with completion of production.

Administration cost: This is general administrative cost and includes all expenditure incurred in formulating the policy, directing the organisation and controlling the operations of an undertaking, which is not directly related to production, selling and distribution, research and development activity or function.

Selling and distribution costs: Selling cost is the cost of seeking to create and simulating demand and of securing orders.

Distribution cost is the cost of sequence of operations which begins with making the packed product available for despatch and ends with making the reconditioned returned empty package for re-use. The various items included in manufacturing administrative, selling and distribution costs are available in Table 7.3

Table 7.3 Functional Classification of Costs

<u>Manufacturing Costs</u>	<u>Selling Cost</u>
Material	Advertising
Labour	Salaries and Commissions of salesman
Factory Rent	Showroom expenses
Depreciation	Samples
Power and Lighting	Travel Expenses
Insurance	
Stores Keeping	
<u>Administrative Costs</u>	<u>Distribution Cost</u>



Accounts office expenses	Packing cost
Audit Fees	Carriage outward
Legal Expenses	Warehousing cost
Office Rent	Unkeep and running cost of delivery vans
Director's Remuneration	
Postage	

Research and development cost: Research cost is the cost of searching new or improved products or methods. It comprises wages and salaries of research staff, payments to outside research organisations, materials used in laboratories and research departments, etc. After completion of research, the management may decide to produce a new improved product or to employ a new or improved method. Development cost is the cost of the process which begins with the implementation of the decision to produce a new product or to employ a new or improved method and ends with the commencement of formal production of that product or by that method.

Pre-production cost is that part of the development cost which is incurred in making in trial production run preliminary to formal production.

(xi) **Classification based on cost behaviour:** Depending on the variability behaviour costs can be classified into variable and fixed costs.

Variable cost: The variable cost is a cost that tends to vary in accordance with level of activity within the relevant range and within a given period of time. The Prime product costs i.e., direct material, direct labour and direct expenses tend to vary in direct proportion to the level of activity. An increase in the volume means a proportionate increase in the total variable costs and a decrease in volume will lead to a proportionate decline in the total variable costs. There is a linear relationship between volume and variable costs. They are constant per unit. Variable costs have an explicit physical relationship with a selected measure of activity and exists an optimum cause and effect relationship between the input and output. Therefore variable costs are also known as engineered costs. All variable costs are not engineered costs. Some of the variable components which are termed as discretionary variable costs and such costs will vary with fluctuations in the levels of activity merely because of the



policy of the management. The variable element of research and development or advertisement costs, which are discretionary by nature may increase with increased activity and management may decide to spend more in periods of increased activity.

Fixed cost: The fixed cost is a cost that tends to be unaffected by changes in the level of activity during a given period of time. The fixed costs remain constant in the total regardless of changes in volume up to a certain level of output. They are not affected by changes in the volume of production. There is an inverse relationship between volume and fixed cost per unit. Fixed costs tend to remain constant for all levels of activity within a certain range. It follows that some fixed costs will continue to be incurred even when the activity comes down to nil. Some fixed costs are liable to change from one period to another. For example salaries bill may go up because of annual increments or due to change in the pay rates and due to pay structure.

Semi-variable cost or semi-fixed cost : Many costs fall between these two extremes. They are called as semi-variable cost or semi-fixed costs. They are neither perfectly variable nor absolutely fixed in relation to changes in volume. They change in the same direction as volume but not in direct proportion thereto. An example is found in telephone charges. The rental element is a fixed cost whereas charges for call made are a variable cost. The distinction between fixed and variable cost is important in forecasting the effect of short-run changes in volume upon costs and profits. This distinction has also given rise to the concepts of Marginal Costing, Direct Costing, Flexible Budgeting. Costs which have neither a linear or curvilinear relationship with output but they move in steps with fluctuations in activity levels. These are called stepped up costs. Basically these are fixed costs upto a certain level of activity specified but they change as soon as a new range is reached. Such costs are semi variable in the long-term but fixed in the short-term. Certain variable costs tend to vary during specific periods for reasons not related to fluctuations in activity level. For example, increased maintenance cost during periods of low production, increased costs on air-conditioning in summer. Costs which fluctuate with volume of production but after certain stage of production has reached the fluctuations in cost is disproportionate. It changes either at a retarded or accelerated rate.

Committed and Discretionary costs: It is shown above that costs may be classified into fixed and variable. Fixed costs may be further classified as committed costs and discretionary



(or programmed) costs. This classification is based on the degree to which firm is locked into the asset or service that is generating the fixed cost. Fixed cost is committed if it is incurred in maintaining physical facilities and management set up. Committed costs cannot be avoided in the short run. For example, salary of the managing director may represent a committed cost if, by policy, the managing director is not to be released unless the firm is liquidated. Similarly, depreciation of plant and equipment is committed because these facilities cannot be easily changed in the short run.

Discretionary fixed costs are those which can be avoided by management. Such costs are not permanent. Advertising, research and development cost, salaries of low level managers are examples of discretionary costs because these costs may be avoided or reduced in the short run if so desired by the managements. This classification into committed and discretionary costs is important from the point of view of cost control and decision making.

Financial Costs:

- **Cash costs:** Cash costs are those sacrifices that are reflected in actual cash outflows. Business transactions usually involve both reward (or revenue) and sacrifice (or cost) with the difference between the two being gain (or profit).
- **Non-cash costs:** Non-cash costs are financial sacrifices that do not involve cash outlays at the time when the cost is recognised. These costs are found in deprecation, opportunity costs etc.

Non-Financial costs: Non-financial costs are those costs that are not directly traceable through a company's cash flow. While such costs (e.g., low morale of employees) certainly involve sacrifices and they may lead eventually, in complex ways to a reduced cash flow in the future. They do not represent an immediate cash outlays. The above cost concepts are based on several factors like controllability, period, situation, input-output relationship, opportunity, urgency, historical, product, etc. The clear understanding of costs concepts will help the management in analysis of costs, reporting, cost control and decision making.

Product Costs and Period Costs : Product costs are those costs which are necessary for production and which will not be incurred if there is not production. These consist of direct materials, direct labour and some of the factory overhead. Product costs are 'absorbed by' or 'attached to' the units produced.



Period costs are those which are not necessary for production and are written off as expenses in the period in which these are incurred. Such cost are incurred for a time period and are charged to Profit and Loss Account of the period, rent, salary of company executives, travel expenses are examples of period costs. These costs are not inventoried i.e. these are not included in the value of closing stocks.

Classification into product and period cost is important from the point of view of profit determination. This is so because product cost is carried forward to the next accounting period as part of the unsold finished stock whereas period cost is written off in the accounting period in which it is incurred.

(xii) **Classification according to Identifiability with Cost Units:** Costs are classified into direct and indirect on the basis of their identability with cost units or jobs or processes:

Direct costs: These are those costs which are incurred for and may be conveniently identified with a particular cost unit, process or department.

Indirect costs: These costs cannot be conveniently identified with a particular cost unit, process or department. These are general costs and are incurred for the benefit of a number of cost units or cost centres.

Cost of raw materials used, wages of machine operators are common examples of direct costs. Examples of indirect costs are rent, repairs, depreciation, managerial salaries, coal, lubricating oil, wages of foreman, etc. Costs are not traced or identified directly to a product for one of the three reasons:

20. It is impossible to do so e.g., rent of building etc.

21. It is not convenient or feasible to do so e.g., nails used in furniture, sewing thread, etc.

22. Management chooses not to do so i.e. many companies classify certain items of cost as indirect because it is customary in the industry to do so e.g., carriage inward etc.

This classification is important from the point of view of accurate ascertainment of cost. Direct costs of product can be conveniently determined while the indirect costs have to be arbitrarily apportioned to various cost units. For example, in readymade garments, the cost of cloth and wages of tailor are accurately ascertained without any difficulty and are thus direct costs. But the rent of factory, managerial salaries, etc., which are indirect costs, have to be apportioned to various cost units on some arbitrary basis and cannot be accurately ascertained.



(xiii) **Classification According to Controllability:** The costs can also be classified into controllable and uncontrollable:

Controllable costs: These are the costs which may be directly regulated at a given level of management authority. Variable costs are generally controllable by department heads. For example, cost of raw material may be controlled by purchasing in larger quantities.

Uncontrollable costs: These are those costs which cannot be influenced by the action of a specified member of an enterprise. Fixed costs are generally uncontrollable. For example, it is very difficult to control costs like factory rent, managerial salaries, etc.

Two important points should be noted regarding this classification. First, controllable costs cannot be distinguished from uncontrollable costs without specifying the level and scope of management authority. In other words, a cost which is uncontrollable at one level of management may be controllable at another level of management. Secondly, in the long-run all costs are controllable.

7.9.4 Components of Total Cost

Prime cost: It consists of direct material, direct labour and direct expenses. It is also known as basic, first or flat cost.

Factory cost: It comprises of prime cost and, in addition, works or factory overheads which include costs of indirect material, indirect labour, and indirect expenses of the factory. The cost is also known as works cost, production or manufacturing cost.

Office Cost: If office and administrative overheads are added to factory cost, office cost is arrived at. This is also termed as administrative cost or the total cost of production.

Total Cost: Selling and distribution overheads are added to the total cost of production to get the total cost or the cost of sales.

7.9.5 Cost Sheet

The components of cost explained above can be presented in the form of a statement. Such a statement of cost giving total cost, cost per unit along with different cost components of is termed as a cost sheet. The computation of different cost components and preparation is a cost sheet can be understood with the following illustration :

Illustration 10.1: Calculate the Prime cost, Factory cost, Total cost of production and Cost of sales from the following particulars:



	Rs.	Rs.
Raw Materials consumed	.....	20,000
Wages paid to labourers	.....	5,000
Directly chargeable expenses	.....	1000
Oil & Waste	.....	100
Wages of Foremen	.....	1,000
Storekeepers' Wages	.....	500
Electric Power	.....	200
Lighting : Factory	500	
Office	200	700
Rent : Factory	2,000	
Office	1,000	3,000
Repairs & Renewals :		
Factory Plant	500	
Machinery	1,000	
Office Premises	200	1,700
Depreciation :		
Office Premises	500	
Plant & Machinery	200	700
Consumable Stores	.....	1,000
Manager's Salary	.....	2,000
Directors' Fees	.....	500
Office Printing & Stationery	.....	200
Telephone Charges	.....	50
Postage & Telegrams	.....	100
Salesmen's Commission & Salary	.....	500
Travelling Expenses	.....	200
Advertising	.....	500
Warehouse Charges	.....	200



Carriage Outward 150

Solution :**COST SHEET**

	Rs.	Rs.
Direct material : Raw material consumed		20000
Direct labour : Wages paid to labourers		5000
Direct expenses : Directly chargeable expenses		1000
PRIME COST		26,000

Add : Factory Overheads :

Indirect material : Consumable stores	1,000		
Oil and waste	100	1,100	
Indirect labour : Wages of foreman	1,000		
Storekeepers' wages	500	1,500	
Indirect expenses : Electric power	200		
Factory lighting	500		
Factory rent	2,000		
Repairs & Renewals :			
Plant	500		
Machinery	1,000		
Depreciation :			
Plant & machinery	200	4,400	7,000
FACTORY OR WORKS COST			33,000

Add : Office and administrative overheads :

Indirect material : Office printing and stationery	200	
Indirect labour : Manager's salary	2,000	
Directors' fees	500	2,500
Indirect expenses : Office lighting	200	
Office rent	1,000	
Repairs and renewals		

s have been extracted from the books of XYZ Ltd. for the year ending 31st March, 2000.

DDE, GJUS&T, Hisar



General selling expenses	1,000
Travelling expenses	1,100
Office salaries	4,500
Carriage outward	1,000
Advertisements	2,000
Sales	2,50,000

From the above figures, calculate the following :

- Prime cost
- Works cost
- Cost of production
- Cost of sales
- Net profit

Solution :

XYZ LTD.

Cost Sheet for the year ending 31st March, 2000

	R s .	Rs.
Direct materials consumed		70,000
Direct wages		75,000
Direct expenses		15,000
Prime Cost		1,60,000
Factory overhead :		
Indirect wages	10,000	
Factory rent & rates	5,000	
Indirect materials	500	
Depreciation of plant	1,500	
General factory expenses	5,700	22,700



Works cost		1,82,700
Office and Administration Overhead		
Office rent and rates	500	
Depreciation of office furniture	100	
Managing Director's remuneration	12,000	
Office salaries	4,500	
General office expenses	1,000	18,100
Cost of Production		2,00,800
Selling and distribution overhead :		
Travelling expenses	1,100	
Carriage outward	1,000	
Advertisements	2,000	
General selling expenses	1,000	5,100
Cost of Sales		2,05,900
Profit		44,100
Sales		2,50,000

7.10 CHECK YOUR PROGRESS

Fill In the Blanks:

1. ----- is that branch of accounting which deals with the classification, recording, allocation, summarisation and reporting of current and prospective costs.
2. A ----- refers to a section of a factory for which costs are accumulated separately.
3. A cost sheet is a statement which shows the details regarding the ----- of the job or a product.
4. The technique and process of ascertaining the cost is defined as -----.
5. ----- cannot be conveniently identified with a particular cost unit, process or department.

7.11 SUMMARY

Whatever may be the type of business, it involves expenditure on labour, materials and other items required for manufacturing and disposing of the product. Moreover, big business requires delegation of responsibility, division of labour and specialisation. Management has to avoid the possibility of waste at



each stage. Management has to ensure that no machine remains idle, efficient labour gets due initiative, proper utilisation of by-products is made and costs are properly ascertained. Besides management, creditors and employees are also benefited in numerous ways by installation of a good costing system in an industrial organisation. Cost accounting increases the overall productivity of an industrial establishment and, therefore, serves as an important tool in bringing prosperity to the nation. The basic principles of ascertaining costs are the same in every system of cost accounting. However, the methods of analysing and presenting the cost may vary from industry to industry. The method to be used in collecting and presenting costs will depend upon the nature of production. Basically there are two methods of costing, namely. Job costing and Process costing. Cost is ascertained by cost centres or cost units or by both. The components of cost when presented in the form of a statement. Such a statement of cost giving total cost, cost per unit along with different cost components of is termed as a cost sheet.

7.12 KEYWORDS

Cost: The technique and process of ascertaining the cost is defined as costing.

Cost accounting: It is that branch of accounting which deals with the classification, recording, allocation, summarisation and reporting of current and prospective costs.

Cost control: It represents the employment of management devices in the performance of any necessary operation so that pre-established objectives may be attained at the lowest possible outlay for goods and services.

Cost unit: A cost unit is a unit of finished product, service or time or combination of these in relation to which cost is ascertained and expressed.

Cost centre: A cost centre refers to a section of a factory for which costs are accumulated separately.

Cost sheet: A cost sheet is a statement which shows the details regarding the total cost of the job or a product.

7.13 SELF ASSESSMENT TEST

2. Define costing and discuss briefly its objectives and advantages.
3. State the differences between Financial Accounting, Cost Accounting and Management Accounting. Explain how financial accounts are inadequate to measure the performance of an industry.
4. "A good system of costing serves as a means of control over expenditure and helps to secure economy in manufacture" Discuss.



5. What are the main benefits that may be expected from the installation of costing system in a manufacturing business.
6. Describe, in brief, the various methods of costing.
7. Distinguish between 'Product and period Cost'
8. Write short note on 'Cost Centre' and 'Cost Unit'
9. Distinguish between :
 - (a) controllable costs and uncontrollable costs.
 - (b) Variable cost and direct cost.
 - (c) Cost control and profit control
 - (d) Sunk cost and Out of Pocket cost.
 - (e) Job costing and process costing.
10. "Costs may be classified in a variety of ways accord to their nature and the information needs of management". Explain and discuss this statement giving examples of classifications required for different purposes
11. Below is the enumerated expenditure in the manufacture of Commodity X : Three months ended

	31-12-1999
Raw materials	28,000
Fuel	6,900
Electric power	1,340
Process and general wages	63,500
Repairs	2,400
Haulage	1,060
Light & Water	400
Rent	2,000
Rates and Insurance	300
Office salaries and general expenses	7,000
Administration (office)	5,000
Depreciation on Machinery	2,500



Total

1,20,400

Tons manufactured – 17,200

Prepare a Cost-Sheet showing the cost per each item of expenses and total cost per each ton for the period.

7.14 ANSWER TO CHECK YOUR PROGRESS

Answer to Fill In the Blank:

1. **Cost accounting** is that branch of accounting which deals with the classification, recording, allocation, summarisation and reporting of current and prospective costs.
2. A **cost centre** refers to a section of a factory for which costs are accumulated separately.
3. A cost sheet is a statement which shows the details regarding the **total cost** of the job or a product.
4. The technique and process of ascertaining the cost is defined as **costing**.
5. **Indirect costs** cannot be conveniently identified with a particular cost unit, process or department.

7.15 REFERENCES/SUGGESTED READINGS

1. Iyengar, S.P. : Cost and Management Accounting
2. Sharma and Gupta : Cost and Management Accounting
3. Lal, Jawahar : Cost Accounting
4. Pandey, I.M. : Management Accounting
5. Chandra, P ; Financial Management
6. Hampton : Financial Decision Making



Subject: Accounting for Managers	
Course Code: MBA-104	Author: Dr. B.S. Bodla
Lesson: 8	Vetter: Prof. Karam Pal
BUDGET AND BUDGETARY CONTROL	

STRUCTURE

8.0 Learning Objectives

8.1 Introduction

8.2 Meaning of Budget and Budgetary Control

8.3 Objective of Budgetary Control

8.4 Scope and Techniques of Budgetary Control

8.5 Requisites For Effective Budgetary Control

8.6 Organisation for Budgetary Control

8.7 Advantages and Limitations of Budgetary Control

8.8 Types of Budget

8.9 Check Your Progress

8.10 Summary

8.11 Keywords

8.12 Self-Assessment Test

8.13 Answer to Check Your Progress

8.14 References/Suggested Readings

8.0 LEARNING OBJECTIVES

This lesson will make you familiar with.

- Meaning of a budget and objectives of budgetary control



- Scope and techniques of budgetary control
- Listing down the advantages and limitations of budgetary control
- Preparation of various types of budgets

8.1 INTRODUCTION

The goal of every organization is to minimize the cost and maximize its profits. In order to achieve this goal, every organization needs a good budgetary control system. A budgetary control system is a control measure, where the actuals are compared with the planned budget, in order to take prompt and appropriate action, in case of any deviations.

8.2 MEANING OF BUDGET AND BUDGETARY CONTROL

The Chartered Institute of Management Accountants, England, defines a ‘budget’ as “A financial and/or quantitative statement, prepared and approved prior to define period of time, of the policy to be perused during that period for the purpose of attaining a given objective.”

According to Brown and Howard “a budget is a predetermined statement of managerial policy during the given period which provides a standard for comparison with the results actually achieved.”

An analysis of the above said definitions reveal the following essentials of a budget:

1. It is prepared for a definite future period.
2. It is a statement prepared prior to a defined period of time.
3. The budget is monetary and/or quantitative statement of policy.
4. The budget is a predetermined statement and its purpose is to attain a given objective.

A budget, therefore, be taken as a document which is closely related to both the managerial as well as accounting functions of an organization.

Forecast Vs Budget

Forecast is mainly concerned with an assessment of probable future events. Budget is a planned result that an enterprise aims to attain. Forecasting precedes preparation of a budget as it is an important part of the budgeting process. It is said that the budgetary process is more a test of forecasting skill than anything else. A budget is both a mechanism for profit planning and technique of operating cost control.



In order to establish a budget, it is essential to forecast various important variables like sales, selling prices, availability of materials, prices of materials, wage rates etc. Both budgets and forecasts refer to the anticipated actions and events. But still there are wide differences between budgets and forecasts as given below:

	Forecasts		Budgets
1.	Forecasts is mainly concerned with anticipated or probable events	1.	Budget is related to planned events
2.	Forecasts may cover for longer period or years	2.	Budget is planned or prepared for a shorter period
3.	Forecast is only a tentative estimate	3.	Budget is a target fixed for a period
4.	Forecast results in planning	4.	Result of planning is budgeting
5.	The function of forecast ends with the forecast of likely events	5.	The process of budget starts where forecast ends and converts it into a budget
6.	Forecast usually covers a specific business function	6.	Budget is prepared for the business as a whole
7.	Forecasting does not act as a tool of controlling measurement.	7.	Purpose of budget is not merely a planning device but also a controlling tool.

Budgetary control

Budgetary control is the process of establishment of budgets relating to various activities and comparing the budgeted figures with the actual performance for arriving at deviations, if any. Accordingly, there cannot be budgetary control without budgets. Budgetary control is a system which uses budgets as a means of planning and controlling.

According to I.C.M.A. England Budgetary control is “the establishment of budgets relating to the responsibilities of executives to the requirements of a policy and the continuous comparison of actual with the budgeted results, either to secure by individual actions the objectives of that policy or to provide a basis for its revision”.



Brown and Howard defines budgetary control as “a system of controlling costs which includes the preparation of budgets, co-ordinating the department and establishing responsibilities, comparing actual performance with the budgeted and acting upon results to achieve maximum profitability.”

The above definitions reveal the following essentials of budgetary control:

1. Establishment of objectives for each function and section of the organization.
2. Comparison of actual performance with budget.
3. Ascertainment of the causes for such deviations of actual from the budgeted performance.
4. Taking suitable corrective action from different available alternatives to achieve the desired objectives.

8.3 OBJECTIVES OF BUDGETARY CONTROL

Budgetary control is planning to assist the management for policy formulation, planning, controlling and co-ordinating the general objectives of budgetary control and can be stated in the following ways:

1. **Planning:** A budget is a plan of action. Budgeting ensures a detailed plan of action for a business over a period of time.
2. **Co-ordination:** Budgetary control co-ordinates the various activities of the entity or organization and secure co-operation of all concerned towards the common goal.
3. **Control:** Control is necessary to ensure that plans and objectives are being achieved. Control follows planning and co-ordination. No control performance is possible without predetermined standards. Thus, budgetary control makes control possible by continuous measures against predetermined targets. If there is any variation between the budgeted performance and the actual performance the same is subject to analysis and corrective action.

8.4 SCOPE AND TECHNIQUES OF BUDGETARY CONTROL

Following is the scope of budgetary control:

1. Budgets are prepared for different functions of business such as production, sales etc. Actual results are compared with the budgets and control is exercised.



2. Budgets have a wide range of coverage of the entire organization. Each operation or process is divided into number of elements and standards are set for each such element.
3. Budgetary control is concerned with origin of expenditure at functional levels.
4. Budget is a projection of financial accounts whereas standard costing projects the cost accounts.

The techniques of budgetary control are:

1. Budgetary control is exercised by putting budgets and actual side by side. Variances are not normally revealed in the accounts.
2. Budgetary control system can be operated in parts. For example, advertisement budgets, research and development budgets, etc.
3. Budgetary control of expenses is broad in nature.

8.5 REQUISITES FOR EFFECTIVE BUDGETARY CONTROL

The following are the requisites for effective budgetary control:

1. Clear cut objectives and goals should be well defined.
2. The ultimate objective of realising maximum benefits should always be kept uppermost.
3. There should be a budget manual which contains all details regarding plan and procedures for its execution. It should also specify the time table for budget preparation for approval, details about responsibility, cost centers etc.
4. Budget committee should be set up for budget preparation and efficient of the plan.
5. A budget should always be related to a specified time period.
6. Support of top management is necessary in order to get the full support and co-operation of the system of budgetary control.
7. To make budgetary control successful, there should be a proper delegation of authority and responsibility.
8. Adequate accounting system is essential to make the budgeting successful.
9. The employees should be properly educated about the benefits of budgeting system.



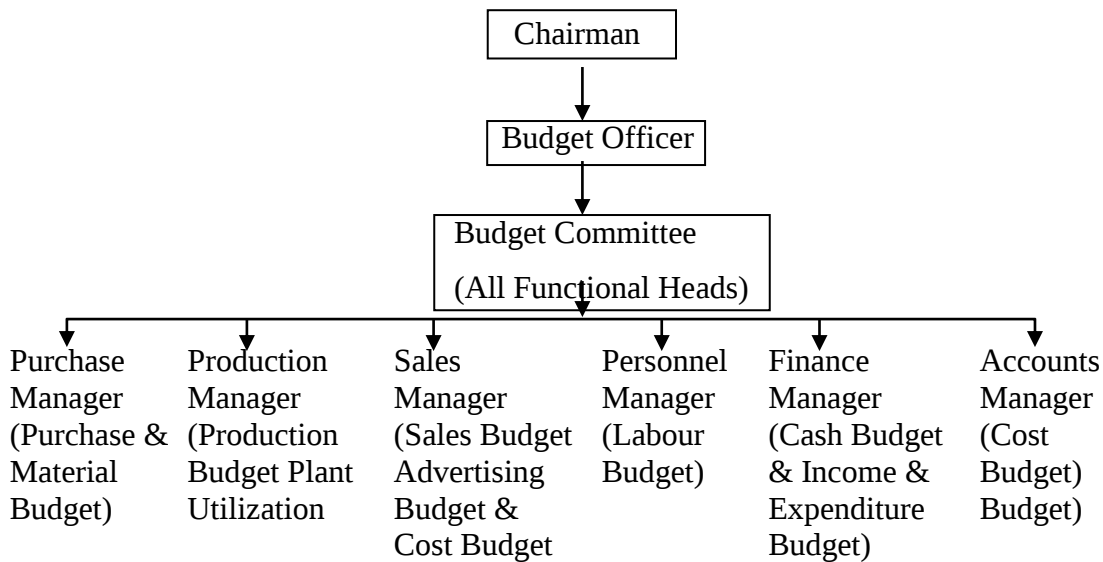
10. The budgeting system should not cost more to operate than it is worth.
11. Key factor or limiting factor, if any, should consider before preparation of budget.
12. For budgetary control to be effective, proper periodic reporting system should be introduced.

8.6 ORGANIZATION FOR BUDGETARY CONTROL

In order to introduce budgetary control system, the following are essential to be considered for a sound and efficient organization. The important aspects to be considered are explained as follows:

1. Organisation chart: For the purpose of effective budgetary control, it is imperative on the part of each entity to have definite 'plan of organization'. This plan of organization is embodied in the organization chart. The organization chart explaining clearly the position of each executive's authority and responsibility of the firm. All the functional heads are entrusted with the responsibility of ensuring proper implementation of their respective departmental budgets. An organization chart for budgetary control is given showing clearly the type of budgets to be prepared by the functional heads.

Organization Chart



From the above chart we can observe that the chairman of the company is the overall in charge of the functions of the Budgeted Committee. A Budget Officer is the convener of the budget committee, who helps in co-ordination. The Purchase Manager, Production Manager, Sales Manager, Personnel Manager, Finance Manager and Account Manager are made responsible to prepare their budgets.



2. **Budget Center:** A budget center is defined by the terminology as ‘a section of the organization of an undertaking defined for the purpose of budgetary control’. For effective budgetary control, budget centre or departments should be established for each of which budget will be set with the help of the head of the department concerned.

3. **Budget officer:** Budget officer is usually some senior member of the accounting staff who controls the budgetary process. He does not prepare the budget himself, but facilitates and co-ordinates the budgeting activity. He assists the individual departmental heads and the budget committee, and ensures that their decisions are communicated to the appropriate people.

4. **Budget committee:** Budget committee comprising of the Managing Director, the Production Manager, Sales Manager and Accountant. The main objective of this committee is to agree on all departmental budgets, normal standard hours and allocations. In small concerns, the Budget Officer may co-ordinate the work for preparation and implementation of budgets. In large-scale concern a budget committee is setup for preparation of budgets and execution of budgetary control.

5. **Budget manual:** A budget manual has been defined as ‘a document which set out the responsibilities of persons engaged in the routine of and the forms and records required for budgetary control’. It contains all details regarding the plan and procedures for its execution. It also specifies the time table for budget preparation to approval, details about responsibility, cost centres, constitution and organisation of budget committee, duties and responsibilities of budget officer.

6. **Budget period:** A budget is always related to specified time period. The budget period is the length of time for which a budget is prepared and employed. The period may depend upon the type of budget. There is no specific period as such. However, for the sake of convenience, the budget period may be fixed depending upon the following factors:

- (a) Types of business
- (b) Types of budget
- (c) Nature of the demand of the product
- (d) Length of trade cycle
- (e) Economic factors



- (f) Availability of accounting period
- (g) Availability of finance
- (h) Control operation

Key Factor

Key Factor is also called as 'Limiting Factor' or Governing Factor. While preparing the budget, it is necessary to consider key factor for successful budgetary control. The influence of the Key Factor which dominates the business operations in order to ensure that the functional budgets are reasonably capable of fulfilment. The key factors include- raw materials may be in short supply, non-availability of skilled labours, Government restrictions, limited sales due to insufficient sales promotion, shortage of power, underutilization of plant capacity, shortage of efficient executives, management policies regarding lack of capital, and insufficient research into new product developments.

8.7 ADVANTAGES AND LIMITATIONS OF BUDGETARY CONTROL

The advantages of budgetary control may be summarized as follows:

1. It facilitates reduction of cost.
2. Budgetary control guides the management in planning and formulation of policies.
3. Budgetary control facilitates effective co-ordination of activities of the various departments and functions by setting their limits and goals.
4. It ensures maximization of profits through cost control and optimum utilization of resources.
5. It evaluates for the continuous review of performance of different budget centres.
6. It helps to the management efficient and economic production control.
7. It facilitates corrective actions, whenever there are inefficiencies and weaknesses comparing actual performance with budget.
8. It guides management in research and development.

From the above it is clear that the budgetary control is an effective tool for management control. However, it has certain important limitations which are identified below:



1. The budget plan is based on estimates and forecasting. Forecasting cannot be considered to be an exact science. If the budget plans are made on the basis of inaccurate forecasts then the budget programme may not be accurate and ineffective.
2. For reason of uncertainty about future, and changing circumstances which may develop later on, budget may prove short or excess of actual requirements.
3. Effective implementation of budgetary control depends upon willingness, co-operation and understanding among people reasonable for execution. Lack of co-operation leads to inefficient performance.
4. The system does not substitute for management. It is like a management tool.
5. Budgeting may be cumbersome and time consuming process.

8.8 TYPES OF BUDGETS

As budgets serve different purposes, different types of budgets have been developed. The following are the different classification of budgets developed on the basis of time, functions, and flexibility or capacity.

(A) *Classification on the basis of Time*

1. Long-term budgets
2. Short-term budgets
3. Current budgets

(B) *Classification according to functions*

1. Functional or subsidiary budgets
2. Master budgets

(C) *Classification on the basis of capacity*

1. Fixed budgets.
2. Flexible budgets

**(A) Classification on the basis of time**

1. *Long-term budgets:* Long-term budgets are prepared for a longer period varies between five to ten years. It is usually developed by the top level management. These budgets summarise the general plan of operations and its expected consequences. Long-term budgets are prepared for important activities like composition of its capital expenditure, new product development and research, long-term finance etc.
2. *Short-term budgets:* These budgets are usually prepared for a period of one year. Sometimes they may be prepared for shorter period as for quarterly or half yearly. The scope of budgeting activity may vary considerably among different organization.
3. *Current budgets:* Current budgets are prepared for the current operations of the business. The planning period of a budget generally in months or weeks. As per ICMA London, “Current budget is a budget which is established for use over a short period of time and related to current conditions.”

(b) Classification on the basis of function

1. *Functional budget:* The functional budget is one which relates to any of the functions of an organization. The number of functional budgets depends upon the size and nature of business. The following are the commonly used:
 - (i) Sales budget
 - (ii) Purchase budget
 - (iii) Production budget
 - (iv) Selling and distribution cost budget
 - (v) Labour cost budget
 - (vi) Cash budget
 - (vii) Capital expenditure budget
2. *Master budget:* The master budget is a summary budget. This budget encompasses all the functional activities into one harmonious unit. The ICMA England defines a Master Budget as



the summary budget incorporating its functional budgets, which is finally approved, adopted and employed.

(C) Classification on the basis of capacity

1. *Fixed budget:* A fixed budget is designed to remain unchanged irrespective of the level of activity actually attained.
2. *Flexible budget:* A flexible budget is a budget which is designed to change in accordance with the various level of activity actually attained. The flexible budget also called as Variable Budget or Sliding Scale Budget, takes both fixed, variable and semi fixed manufacturing costs into account.

8.8.1 Control Ratios

Ratios are used by the management to determine whether performance of its activities is going on as per estimates or not. If the ratio is 100% or more, the performance is considered as unsatisfactory. The following are the ratios generally calculated for performance evaluation.

1. *Capacity ratio:* This ratio indicates the extent to which budgeted hours of activity is actually utilised.

$$\text{Capacity Ratio} = \frac{\text{Actual hours worked production}}{\text{Budget hours}} \times 100$$

2. *Activity ratio:* This ratio is used to measure the level of activity attained during the budget period.

$$\text{Activity ratio} = \frac{\text{Standard hours for actual production}}{\text{Budgeted hours}} \times 100$$

3. *Efficiency ratio:* This ratio shows the level of efficiency attained during the budget period

$$\text{Efficiency ratio} = \frac{\text{Standard hours for actual production}}{\text{Actual hours worked}} \times 100$$

4. *Calendar ratio:* This ratio is used to measure the proportion of actual working days to budgeted working days in a budget period.



$$\text{Calendar ratio} = \frac{\text{Numbr of actual working days in a period}}{\text{Budgeted working days for the period}} \times 100$$

Illustration 8.1. A company produces two articles A and B. Each unit takes 4 hours for A and 10 hours for B as production time respectively. The budgeted production for April, 2017 is 400 units of A and 800 units for B. The actual production at the end of the months was 320 units of A and 850 units of B. Actual hours spent on this production were 200. Find out the capacity, activity and efficiency ratios for April 2017. Also find out the Calendar ratio if the actual working days during the month be 28 corresponding to 26 days in the budget.

Solution.

Standard budgeted hours:

$$A - 400 \div 4 = 100 \text{ hours}$$

$$B - 800 \div 10 = 80 \text{ hours}$$

$$180 \text{ hours}$$

Standard hours for actual production:

$$A - 320 \div 4 = 80 \text{ hours}$$

$$B - 850 \div 10 = 85 \text{ hours}$$

$$165 \text{ hours}$$

$$(1) \text{ Capacity ratio} = \frac{\text{Actual hours worked}}{\text{Budgeted hours}} \times 100$$

$$= \frac{200}{180} \times 100$$

$$= 111.1\%$$

$$(2) \text{ Activity ratio} = \frac{\text{Standard hours for actual production}}{\text{Budgeted hours}} \times 100$$

$$= \frac{165}{180} \times 100$$

$$= 91.66\%$$



$$(3) \text{ Efficiency ratio} = \frac{\text{Standard hours for actual production}}{\text{Actual hours worked}} \times 100$$

$$= \frac{165}{200} \times 100$$

$$= 82.5\%$$

$$(4) \text{ Calendar ratio} = \frac{\text{Number of actual working days in a period}}{\text{Number of working days in a budget period}} \times 100$$

$$= \frac{28}{26} \times 100$$

$$= 107.69\%$$

Illustration 8.2. Product A takes 4 hours to make and B requires 8 hours. In a month 27 effective days of 8 hours a day. 500 units of A and 300 units, of Y were produced. The company employ 25 workers in the production department. The budgeted hours are 60,000 for the year. Calculate capacity ratio, activity ratio and effective ratio.

Solution.

Standard hours for actual production:

$$\text{Product A: } 500 \times 4 = 2000 \text{ hours}$$

$$\text{Product B: } 300 \times 8 = 2400 \text{ hours}$$

$$4400 \text{ hours}$$

$$\text{Budgeted hours for the month} = \frac{60000}{12}$$

$$= 5000 \text{ hours}$$

$$\text{Actual hours worked} = 25 \times 27 \times 8 = 5400 \text{ hours}$$

$$(1) \text{ Capacity ratio} = \frac{\text{Actual hours worked}}{\text{Budgeted hours}} \times 100$$

$$= \frac{5400}{5000} \times 100$$



$$= 108\%$$

$$(2) \text{ Activity ratio} = \frac{\text{Standard hours for actual production}}{\text{Budgeted hours}} \times 100$$

$$= \frac{4400}{5000} \times 100$$

$$= 91.66\%$$

$$(3) \text{ Efficiency ratio} = \frac{\text{Standard hours for actual production}}{\text{Actual hours worked}} \times 100$$

$$= \frac{4400}{5400} \times 100$$

$$= 81.48\%$$

8.8.2 Sales Budget

Sales budget is one of the important functional budgets. Sales estimate is the commencement of budgeting may be made in quantitative terms. Sales budget is primarily concerned with forecasting of what products will be sold in what quantities and at what prices during the budget period. Sales budget is prepared by the sales executives taking into account number of relevant and influencing factors such as: Analysis of past sales, key factors, market conditions, production capacity, government restrictions, competitor's strength and weakness, advertisement, publicity and sales promotion, pricing policy, consumer behaviour, nature of business, types of product, company objectives, salesmen's report, marketing research's reports, and product life cycle.

Illustration 8.3. Ashish Engineering Co. Ltd. manufacturers two articles X and Y. Its sales department has three divisions: West, South and East. Preliminary sales budgets for the year ending 31st December 2017, based on the assessments of the divisional executives:

Product X: West 40,000 units: South 1,00,000 units and East 20,000 units

Product Y: West 60,000 units: South 8,00,000 units and East Nil

Sales price X ` 2 and Y ` 3 in all areas.



Arrangements are made for the extensive advertising of product X and Y and it is estimated that West division sales will increase by 20,000 units. Arrangements are also made to advertise and distribute product Y in the Eastern area in the second half of 2017 when sales are expected to be 1,00,000 units.

Since the estimated sales of the South division represented an unsatisfactory target, it is agreed to increase both the estimates by 10%. Prepare a sales budget for the year to 31st December 2017.

Solution:**Sales budget for the year 2017**

Division	Product X			Product Y			Total `
	Qty.	Price `	Value `	Qty.	Price `	Value `	
West	60,000	2	1,20,000	80,000	3	2,40,000	3,60,000
South	1,10,000	2	2,20,000	88,000	3	2,64,000	4,84,000
East	20,000	2	40,000	1,00,000	3	3,00,000	3,40,000
Total	1,90,000		3,80,000	2,68,000		8,04,000	11,84,000

Illustration 8.4. Natarajan Ltd. has four sales territories A, B, C, D. Each salesman is expected to sell the following number of units during the First Quarter of 2017. Assume the average selling price to be ` 10:

Month	A Units	B Units	C Units	D Units
April	500	750	1,250	1,750
May	1,000	900	1,400	2,000
June	1,250	1,000	1,500	2,250

Solution:**Sales budget, First Quarter 2017**



Territory	April			May			June			Quarter	
	Qty.	Price	Value	Qty.	Price	Value	Qty.	Price	Value	Qty.	Value
	Unit	`	`	Unit	`	`	Unit	`	`	Unit	`
A	500	10	5,000	1,000	10	10,000	1,250	10	12,500	2,750	27,500
B	750	10	7,500	900	10	9,000	1,000	10	10,000	2,650	26,500
C	1,250	10	12,500	1,400	10	14,000	1,500	10	15,000	4,150	41,500
D	1,750	10	17,500	2,000	10	20,000	2,250	10	22,500	6,000	60,000
Total	4,250		42,500	5,300		53,000	6,000		60,000	15,550	1,55,500

8.8.3. Production Budget

Production budget is usually prepared on the basis of sales budget. But it also takes into account the stock levels desired to be maintained. The estimated output of business firm during a budget period will be forecast in production budget. The production budget determines the level of activity of the produce business and facilitates planning of production so as to maximum efficiency. The production budget is prepared by the chief executives of the production department. While preparing the production budget, the factors like estimated sales, availability of raw materials, plant capacity, availability of labour, budgeted stock requirements etc. are carefully considered.

8.8.4 Cost of Production Budget

After preparation of production budget, this budget is prepared. Production cost budgets show the cost of the production determined in the production budget. Cost of production budget is grouped in to material cost budget, labour cost budget and overhead cost budget. Because it break up the cost of each product into three main elements material, labour and overheads. Overheads may be further subdivided in to fixed, variable and semi-fixed overheads. Therefore separate budgets required for each item.

Illustration 8.5. From the following particular, you are required to prepare production budget of Mittal Ltd. a manufacturing organization that has three products X, Y and Z.

Product	Estimated stock at	Estimated stock at	Estimated sales as
---------	--------------------	--------------------	--------------------



	the beginning of the budget period	the end of the budget period	per sales budget
X	5,000 units	6,400 units	21,600 units
Y	4,000 units	3,850 units	19,200 units
Z	6,000 units	7,800 units	23,100 units

Solution:

Particulars	X (Units)	Y (Units)	Z (Units)
Expected sales during the period	21,600	19,200	23,100
Add: Closing stock at the end of budget period	6,400	3,850	7,800
	28,000	23,050	30,900
Less: Opening stock at the beginning of the budget period	5,000	4,000	6,000
Budgeted production	23,000	19,050	24,900

Illustration 8.6. Production cost of a factory for a year is as follows:

Direct wages ` 40,000

Direct materials ` 60,000

Production overhead fixed ` 20,000

Production overhead variable ` 30,000

During the forthcoming year, it is expected that

(a) The average rate for direct labour remuneration will be far from ` 3 per hour to ` 2 per hour

(b) Production efficiency will remain unchanged

(c) Direct labour hours will increase by $33\frac{1}{3}\%$

The purchase price per unit of direct materials and of the other materials and services which comprise overheads will remain unchanged.



Draw up a budget and a factory overhead rate, the overhead being absorbed on a direct wage basis.

Solution:

Cost of production budget

Particulars	`	Amount `
Direct Materials		60,000
Direct wages $\left[40,000 \times \frac{2}{3} \times \frac{4}{3} \right]$		35,556
Prime cost		95,556
Add: Production overhead:		
Fixed	` 20,000	
Variable	` 30,000	50,000
Factor cost (or) cost of production		1,45,556

8.8.5. Material Purchase Budget

The different levels of material stock are based on planned out. Once the production budget is prepared, it is necessary to consider the requirement of materials to carry out the production activities. Material purchase budget is concerned with purchase and requirement of direct materials to be made during the budget period. While preparing the materials purchase budget, the following factors to be considered carefully:

1. Estimated sales and production.
2. Requirement of materials during budget period.
3. Expected changes in the prices of raw materials.
4. Different stock levels, EOQ etc.
5. Availability of raw materials, i.e., seasonal or otherwise.
6. Availability of financial resources.
7. Price trend in the market.
8. Company's stock policy etc.



Illustration 8.7. Draw up a material purchase budget from the following information:

Estimated sales of a product are 30,000 units. Two kinds of raw materials A and B are required for manufacturing the product. Each unit of the product requires 3 units of A and 4 units of B. The estimated opening balance in the beginning of the next year: finished goods 5,000 units; A, 6,000 units; B, 10,000 units. The desirable closing balance at the end of the next year: finished product, 8,000 units; A, 10,000 units, B 12,000 units.

Solution:

$$\begin{aligned}
 \text{Estimated production} &= \text{Expected sales} + \text{desired closing stock of finished goods} - \text{Estimated opening stock of finished goods} \\
 &= 30,000 + 8,000 - 5,000 \\
 &= 33,000 \text{ units}
 \end{aligned}$$

Material purchase budget for the year

Particulars	Material A (Units)	Material B (Units)
Material required to meet production Target		
Material A – $33,000 \times 3$	99,000	1,32,000
Material B – $33,000 \times 4$		
Add: Desired closing stock at the end of next year	10,000	12,000
	1,09,000	1,44,000
Less: Expected stock at the commencement of next year (opening balance)	6,000	10,000
Quantity of materials to be purchased	1,03,000	1,34,000

8.8.6. Cash Budget

This budget represents the anticipated receipts and payment of cash during the budget period. The cash budget also called as Functional Budget. Cash budget is the most important of the entire functional budget because, cash is required for the purpose to meeting its current cash obligations. If at any time, a concern fails to meet its obligations, it will be technically insolvent. Therefore, this budget is prepared



on the basis of detailed cash receipts and cash payments. The estimated cash receipts include: cash sales, credit sales, collection from sundry debtors, bills receivable, interest received, income from sale of investment, commission received, dividend received and income from non-trading operations etc.

The estimated cash payments include the following:

1. Cash purchase
2. Payment to creditors
3. Payment of wages
4. Payments relate to production expenses
5. Payments relate to office and administrative expenses
6. Payments relate to selling and distribution expenses
7. Any other payments relate to revenue and capital expenditure
8. Income tax payable, dividend payable etc.

Illustration 8.8. Prasad and Co. wishes to prepare cash budget from January. Prepare a cash budget for the first six months from the following estimated revenue and expenses:

Month	Total sales (₹)	Materials (₹)	Wages (₹)	Production overheads (₹)	Selling and distribution overheads (₹)
January	10,000	10,000	2,00	1,600	400
February	11,000	7,000	2,200	1,650	450
March	14,000	7,000	2,300	1,700	450
April	18,000	11,000	2,300	1,750	500
May	15,000	10,000	2,000	1,600	450
June	20,000	12,500	2,500	1,800	600

Additional information



1. Cash balance on 1st January was ₹ 5,000. New machinery is to be installed at ₹ 10,000 on credit, to be repaid by two equal instalments in March and April.
2. Sales commission @ 5% on total sales is to be paid within a month of following actual sales.
3. ₹ 5,000 being the amount of 2nd call may be received in March. Share Premium amounting to ₹ 1,000 is also obtainable with the 2nd call.
4. Period of credit allowed by suppliers- 2 months.
5. Period of credit allowed to customers- 1 month.
6. Delay in payment of overheads- 1 month.
7. Delay in payment of wages- ½ month.
8. Assume cash sales to be 50% of total sales.

Solution.**Cash Budget from January to June**

Particulars	January (₹)	February (₹)	March (₹)	April (₹)	May (₹)	June (₹)
Opening balance	5,000	9,000	14,900	13,500	12,350	16,550
Estimated cash receipts:						
Cash sales	5,000	5,500	7,000	9,000	7,500	10,000
Credit sales	-	5,000	5,500	7,000	9,000	7,500
Second call	-	-	5,000	-	-	-
Share premium	-	-	1,000	-	-	-
Total cash Receipts (A)	10,000	19,500	33,400	29,500	28,850	34,050
Estimated cash payments:						
Materials	-	-	10,000	7,000	7,000	11,000
Wages	1,000	2,100	2,250	2,300	2,150	2,250
Production Overheads	-	1,600	1,650	1,700	1,750	1,600
Selling & Distribution	-	400	450	450	500	450



overheads						
Sales commission	-	500	550	700	900	750
Purchase of machinery	-	-	5,000	5,000	-	-
Total cash Payment (B)	1,000	4,600	19,900	17,150	12,300	16,050
Closing balance (A – B)	9,000	14,900	13,500	12,350	16,550	18,000

Illustration 8.9. From the following data, forecast the cash position at the end of April, May and June 2017.

Month	Sales (₹)	Purchase (₹)	Wages (₹)	Miscellaneous (₹)
February	60,000	42,000	5,000	3,500
March	65,000	50,000	6,000	4,000
April	40,000	52,000	4,000	3,000
May	58,000	53,000	5,000	6,000
June	44,000	40,000	4,000	3,000

Additional information:

1. Sales: 10% realized in the month of sales; balance realised equally in two subsequent months.
2. Purchases: These are paid in the month following the month of supply.
3. Wages: 10% paid in arrears following month.
4. Miscellaneous expenses: Paid a month in arrears.
5. Rent: ₹ 500 per month paid quarterly in advance due in April.
6. Income tax: First instalment of advance tax ₹ 15,000 due on or before 15th June.
7. Income from investment: ₹ 3,000 received quarterly in April, July etc.
8. Cash in hand: ₹ 3,000 on 1st April 2017.

Solution:



Cash budget for the month of April, May and June

Particulars	April (₹)	May (₹)	June (₹)
Opening balance of cash	3,000	7,550	700
Add: Cash receipts:			
Cash sales	4,000	5,800	4,400
Receipts from debtors (Credit Sales)			
Collection in 1 st month	29,250	18,000	19,800
Collection in 2 nd month	27,000	29,250	18,000
Income from investment	3,000	-	-
Total cash receipts (1)	66,250	60,600	42,900
Less: Cash payments:			
Creditors for purchases	50,000	52,000	53,000
Wages: Current (90%)	3,600	4,500	3,600
Arrears (10%)	600	400	500
Rent	500	-	-
Miscellaneous expenses	4,000	3,000	6,000
Income tax	-	-	15,000
Total payments (2)	58,700	59,900	78,100
Closing balance of cash (1-2)	7,550	700	(-) 35,200

Working notes:

1. Out of total sales, 10% are cash sales. Balance 90% is credit sales. In any given month 50% of credit sale of the previous two months are collected (See Working Note).
2. In any given month, 90% of the wages of the same month and 10% of previous month's wages are paid.

Working notes for collection of cash from debtors and sales

Particulars	February	March	April	May	June
	(₹)	(₹)	(₹)	(₹)	(₹)



Total sales	60,000	65,000	40,000	58,000	44,000
Less: Cash sales (10%)	6,000	6,500	4,000	5,800	4,400
Credit sales	54,000	58,500	36,000	52,200	39,600
Collection in 1 st month after credit sales	-	27,000	29,250	18,000	19,800
Collection in 2 nd month after credit sales	-	-	27,000	29,250	18,000
Total credit	-	-	56,250	47,250	37,800

8.8.8. Master Budget

When the functional budgets have been completed, the budget committee will prepare a master budget for the target of the concern. Accordingly a budget which is prepared incorporating the summaries of all functional budgets. It comprises of budgeted profit and loss account, budgeted balance sheet, budgeted production, sales and costs. The ICMA England defines a Master Budget as ‘the summary budget incorporating its functional budgets, which is finally approved, adopted and employed’. The master budget represents the activities of a business during a profit plan. This budget is also helpful in coordinating activities of various functional departments.

Illustration 8.10. Pushpack and Co., a glass manufacturing company requires you to calculate and present the budget for the next year from the following information:

Toughened glass	₹ 2,00,000
Bent toughened glass	₹ 3,00,000
Direct material cost	60% of sales
Direct wages	10 workers @ ₹ 100 per month

Factory overheads

Indirect labour:

Work manager	₹ 300 per month
Foreman	₹ 200 per month



Stores and spares	2% on sales
Depreciation on machinery	` 6,000
Light and power	` 2,000
Repairs and maintenance	` 4,000
Other sundries	10% on direct wages
Administration, selling and distribution expenses ` 7,000 per year.	

Solution:**Master budget for the year ending**

Particulars	Amount	Amount
Sales (as per sales budget):		
Toughened glass		2,00,000
Bent toughened glass		3,00,000
		5,00,000
Less: Cost of production:		
(as per cost of production budget)		
Direct materials	3,00,000	
Direct wages	12,000	
Prime cost	3,12,000	
Add: Factory overhead:		
Variable:		
Stores and spares	` 10,000	
Light and power	` 2,000	
Repairs and maintenance	` 4,000	16,000
Fixed:		
Work Manager's salary	` 3,600	
Foreman salary	` 2,400	
Depreciation	` 6,000	



Sundries	1,200	13,200	3,41,200
Work's cost		3,41,200	
Gross profit			1,58,800
Less: Administration, selling & distribution overheads			7,000
Net profit			1,51,800

8.8.9. Fixed Budget

A budget is drawn for a particular level of activity is called fixed budget. According to ICWA London 'Fixed budget is a budget which is designed to remain unchanged irrespective of the level of activity actually attained. Fixed budget is usually prepared before the beginning of the financial year. This type of budget is not going to highlight the cost variance due to the difference in the levels of activity. Fixed budgets are suitable under static conditions.

8.8.10. Flexible Budget

Flexible budget is also called variable or sliding scale budget, takes both the fixed and manufacturing costs into account. Flexible budget is the opposite of static budget showing the expected cost at a single level of activity. According to ICMA, England define Flexible Budget is a 'budget which is designed to change in accordance with the level of activity actually attained.'

According to the principles that guide the preparation of the flexible budget a series of fixed budgets are drawn for different levels of activity. A flexible budget often shows the budgeted expenses against each item of cost corresponding to the different levels of activity. This budget has come into use for solving the problems caused by the application of the fixed budget.

Advantages of flexible budget

1. In flexible budget, all possible volume of output or level of activity can be covered.
2. Overhead costs are analysed into fixed variable and semi-variable costs.
3. Expenditure can be forecasted at different levels of activity.
4. It facilitates at all times related factor can be compared, which essential for intelligent decision are making.



5. A flexible budget can be prepared with standard costing or without standard costing depending upon what the company opts for.
6. A flexible budget facilitates ascertainment of costs at different levels of activity, price fixation, placing tenders and quotations.
7. It helps in assessing the performance of all departmental heads as the same can be judged by terms of the level of activity attained by the business.

Distinction between fixed budget and flexible budget

	Fixed budget		Flexible budget
1.	It does not change with the volume of activity	1.	It can be recast on the basis of volume of cost.
2.	All costs are related to one level of activity only.	2.	Costs are analysed by behaviour and variable costs are allowed as per activity attained.
3.	If budget and actual activity levels vary, cost ascertainment does not provide a correct picture.	3.	Flexible budgeting helps in fixation of selling price at different levels of activity.
4.	Ascertainment of costs is not possible in fixed cost.	4.	Costs can be easily ascertained at different levels of activity.
5.	It has a limited application for cost control.	5.	It has more application and can be used as a tool for effective cost control.
6.	It is rigid budget and drawn on the assumption that conditions would remain constant.	6.	It is designed to change according to changed conditions.
7.	Comparison of actual and budgeted performance cannot be done correctly because the volume of production differs.	7.	Comparisons are realistic according to the change in the level of activity.
8.	Costs are not classified according to their variability, i.e., fixed, variable and semi-variable.	8.	Costs are classified according to the nature of their variability.

Method of preparing flexible budget

The following methods are used in preparing a flexible budget:

1. Multi-activity method



2. Ratio method
3. Charting method.
1. *Multi-Activity method:* This method involves preparing a budget in response to different level of activity. The different level of activity or capacity levels are shown in Horizontal columns, and the budgeted figures against such levels are placed in the Vertical Columns. The expenses involved in production as per budget are grouped as fixed, variable and semi variable.
2. *Ratio method:* According to this method, the budget is prepared first showing the expected normal level of activity and the estimated variable cost per unit at the side expected level of activity in addition to the fixed cost as estimated. Therefore, the expenses as per budget, allowed for a particular level of activity attained, will be calculated on the basis of the following formula:
Budgeted fixed cost + (Variable cost per unit of activity × Actual unit of activity).
3. *Charting method:* Under this method, total expenses required for any level of activity are estimated having classified into three categories, viz., variable, semi variable and fixed. These figures are plotted on a graph. The expenses are plotted on the Y-axis and the level of activity is plotted on X-axis. The graph will thus, help in ascertaining the quantum of budgeted expenses corresponding to the level of activity attained with the help of this chart.

8.8.11 Zero Base Budgeting (ZBB)

Zero base budgeting is a new technique of budgeting. It is designed to meet the needs of the management in order to ensure the operational efficiency and effective utilization of the allocated resources of a concern. This technique was originally developed by Peter A. Phyhrr, Manager of Texas Instrument during 1969. This concept is widely used in USA for controlling their state expenditure when Mr. Jimmy Carter was the President of the USA. At present the technique has its global recognition for many countries and have implemented in real terms.

According to Peter A. Phyhrr, ZBB is defined as an “Operative planning and budgeting process which requires each manager to justify his entire budget in detail from Scratch (hence zero base) and shifts the burden of proof to each manager to justify why we should spend any money at all”.



In zero-base budgeting, a manager at all levels, have to justify the importance of activity and to allocate the resources on priority basis.

Important aspect of ZBB

Zero-based budgeting involves the following important aspects:

1. It emphasises on all requisites of budgets.
2. Evaluation on the basis of decision packages and systematic analysis, i.e., in view of cost benefit analysis.
3. Planning the activities, promotes operational efficiency and monitors the performance to achieve the objectives.

Steps involved in ZBB

The following are the steps involved in zero base budgeting:

1. No previous year performance or inefficiencies is to be taken as adjustments in subsequent year.
2. Identification of activities in decision packages.
3. Determination of budgeting objectives to be attained.
4. Extent to which zero base budgeting is to be applied.
5. Evaluation of current and proposed expenditure and placing them in order of priority.
6. Assignment of task and allotment of sources on the basis of cost benefit comparison.
7. Review process of each activity examined afresh.
8. Weightage should be given for alternative course of actions.

Advantages of ZBB

1. Utilization of resources at a maximum level.
2. It serves as a tool of management in formulating production planning.
3. It facilitates effective cost control.
4. It helps to identify the uneconomical activities.



5. It ensures the proper allocation of scarce resources on priority basis.
6. It helps to measure the operational inefficiencies and to take the corrective actions.
7. It ensures the principles of management by objectives.
8. It facilitates co-operation and co-ordination among all levels of management.
9. It ensures each activity is thoroughly examined on the basis of cost benefit analysis.

8.8.13 Performance Budgeting

Performance budget has been defined as a ‘budget based on functions, activities and projects.’

Performance budgeting may be described as ‘the budgeting system in which input costs are related to the performance, i.e., end results.’

According to National Institute of Bank Management, Performance budgeting is, “the process of analyzing, identifying, simplifying and crystallizing specific performance objectives of a job to be achieved over a period, in the framework of the organizational objectives, the purpose and objectives of the job.”

From the above definitions, it is clear that budgetary performance budgetary involves the following:

1. Establishment of well defined centres of responsibilities:
2. Establishment for each responsibility centre- a programme of target performance is in physical units.
3. Forecasting the amount of expenditure required to meet the physical plan laid down.
4. Comparison of the actual performance with the budgets, i.e., evaluation of performance.
5. Undertaking periodic review of the programme with a view to make modifications as required.

Illustration 8.11. Prepare a flexible budget for overheads on the basis of the following data. Ascertain the overhead rates at 50%, 60% and 70% capacity.

	At 50% capacity (₹)
Variable overheads:	
Indirect material	3,000



Indirect labour	9,000
Semi-variable overheads:	
Electricity (40% fixed 60% variable)	15,000
Repairs (80% fixed 20% variable)	1,500
Fixed overheads:	
Depreciation	8,250
Insurance	2,250
Salaries	7,500
Total overheads	46,500
Estimated direct labour hours	93,000

Solution.**Flexible budget**

Particulars	50% capacity	60% capacity	70% capacity
Variable overheads:			
Indirect material	2,500	3,000	3,500
Indirect labour	7,500	9,000	10,500
Semi-variable overheads:			
Electricity	13,500	15,000	16,500
Repairs and maintenance	1,450	1,500	1,550
Fixed overheads:			
Depreciation	8,250	8,250	8,250
Insurance	2,250	2,250	2,250
Salaries	7,500	7,500	7,500
Total overheads	42,950	46,500	50,050
Estimated direct labour hours	77,500	93,000	1,08,500
Overhead rate	` 0.55	` 0.50	` 0.46

**Working notes:**

1. *Electricity:* ₹ 15,000 is the cost of electricity at 60% capacity, of which 40% are fixed overheads, i.e., ₹ 6,000 and variable is ₹ 9,000:

For 60% capacity variable overheads = ₹ 9,000

For 50% capacity variable overheads = $\frac{9000}{60} \times 50 = ₹ 7,500$

Therefore electricity cost at 50% capacity = 6,000 + 7,500 = ₹ 13,500

For 70% capacity, variable overheads = $\frac{9000}{60} \times 70 = ₹ 10,500$

Therefore electricity cost at 70% = ₹ 10,500 + ₹ 6,000
= ₹ 16,500

2. *Repairs and maintenance:* ₹ 1500 is the cost of repairs and maintenance at 60% capacity, of which 80% is fixed overhead, i.e., ₹ 1,200 and variable is ₹ 300:

For 60% capacity variable overhead = ₹ 300

For 50% capacity variable overhead = $\frac{300}{60} \times 50 = ₹ 250$

Therefore the total cost of repairs and maintenance at 50%

= ₹ 1,200 + ₹ 250 = ₹ 1,450

For 70% capacity, variable overhead = $\frac{300}{60} \times 70 = ₹ 350$

Therefore the total cost of repairs and maintenance

= ₹ 1,200 + ₹ 350 = ₹ 1,550

Illustration 8.12. With the following data for a 60% activity prepare a budget for production at 80% and 100% capacity

Production at 60% capacity 300 units

Materials ₹ 100 per unit



Labour ₹ 40 per unit

Expenses ₹ 10 per unit

Factory expenses ₹ 40,000 (40% fixed)

Administrative expenses ₹ 30,000 (60% fixed)

Solution.

Flexible Budget

Particulars	60% capacity 300 units	80% capacity 400 units	100% capacity 500 units
Direct cost:			
Material ₹ 100 per unit	30,000	40,000	50,000
Labour ₹ 40 per unit	12,000	16,000	20,000
Expenses ₹ 10 per unit	3,000	4,000	5,000
Total direct costs	45,000	60,000	75,000
Add: variable factory expenses (₹ 40 per unit)	12,000	16,000	20,000
Variable administrative expenses (₹ 20 per unit)	6,000	8,000	10,000
Fixed factory expenses (40% of ₹ 40,000)	16,000	16,000	16,000
Fixed administrative expen. (60% of ₹ 30,000)	18,000	18,000	18,000
Total	97,000	1,18,000	1,39,000

8.9 CHECK YOUR PROGRESS

State whether following statements true or false:

1. Budget is a plan result that an enterprise aims to attained.
2. Budgetary control guides the management in planning an formulation of policies.
3. Fix budget is designed to change in accordance with the various level of activity actually attained.



4. Performance budgeting is a budget based on objectives and efficiencies.

8.10 SUMMARY

Budgeting has come to be accepted as an efficient method of short-term planning and control. It is employed, no doubt, in large business houses, but even the small businesses are using it at least in some informal manner. Though the budgets, a business wants to know clearly as to what it proposes to do during an accounting period or a part thereof. The technique of budgeting is an important application of management accounting. Probably, the greatest aid to good management that has ever been devised is the use of budgets and budgetary control. It is a versatile tool and has helped managers cope with many problems including inflation.

8.11 KEYWORDS

Flexible Budget: A budget which is designed to change in accordance with the level of activity actually attained.

Master Budget: It represents the activities of a business during a profit plan.

Cash Budget: Cash budget represents the anticipated receipts and payments of cash during the budget period.

Budgetary Control: A system which uses budget as a means of planning and controlling.

8.12 SELF -ASSESSMENT TEST

1. What do you mean by a budget? List out its essentials.
2. What do you understand by budgetary control? Explain briefly the characteristics of a good budget.
3. What are the objectives of budgetary control?
4. Describe essential requisites for effective budgetary control.
5. What are the advantages and limitations of budgetary control?
6. What is sales budget? What are the factors considered in developing the sales budget?
7. Write short notes on: (a) Production budget, (b) cost of production budget, and (c) materials budget.



8. What do you understand by cash budget? Discuss the procedure for preparing the cost budget.
9. What do you understand by fixed budget and flexible budget? What are the advantages of flexible budget?
10. Describe the different methods of preparing flexible budget.
11. A manufacturing company submits the following figures:

Budgeted production 44 units; Actual production 40 units;

Standard hours per unit 8; Actual work hours 500.

You are required to calculate (a) capacity ratio, (b) activity ratio, and (c) efficiency ratio.

12. Two articles A and B are manufactured in a department. Sales for the year 2017 were planned as follows:

Product	1 st quarter Units	2 nd quarter Units	3 rd quarter Units	4 th quarter Units
A	5,000	6,000	6,500	7,500
B	2,500	2,250	2,000	1,900

Selling price were ` 10 per unit for A and ` 20 per unit for B respectively. Average less return are 10% of sales and the discounts and bad debts amount to 2% of the total sales.

13. A company is expecting to have ` 25,000 cash in hand on 1st April 2017 and it requires you to prepare an estimate of cash position in respect of three months from April to June 2017, from the information given below:

	Sales (₹)	Purchase (₹)	Wages (₹)	Expenses (₹)
February	70,000	40,000	8,000	6,000
March	80,000	50,000	8,000	7,000
April	92,000	52,000	9,000	7,000
May	1,00,000	60,000	10,000	8,000
June	1,20,000	55,000	12,000	9,000

Additional information:



- (a) Period of credit allowed by suppliers- two months.
- (b) 25% of sale is for cash and the period of credit allowed to customer for credit sale one month.
- (c) Delay in payment of wages and expenses one month.
- (d) Income tax ` 25,000 is to be paid in June 2017.

14. A factory is currently to 50% capacity and produces 10,000 units. Estimate the profits of the company when it works at 60% and 80% capacity and offer your critical comments.

At 60% working raw materials cost increases by 2% and selling price falls by 2% at the 80% working, raw material cost increases by 5% and selling price falls by 5%.

At 50% capacity working the product costs ` 180 per unit and is sold at ` 200 per unit. The unit cost of ` 180 is made up as follows:

Materials	` 100
Labour	` 30
Factory overhead	` 30 (40% fixed)
Administrative overhead	` 20 (50% fixed)

8.13 ANSWERS TO CHECK YOUR PROGRESS

- 1. True
- 2. True
- 3. False
- 4. False

8.14 REFERENCES/SUGGESTED READINGS

- 1. Jain and Khan: Management Accounting, TMH, Delhi.
- 2. Pandey, I.M.: Financial Management, Vikas Publishing House, Delhi.
- 3. Periasamy, P.: Financial, Cost and Management Accounting, HPH, Delhi.



4. Maheshwari, S.N.: Accounting for Management and Control, Sultan Chand and Sons, Delhi.
5. Van Horne: Financial Management and Analysis, Pearson Publication, Delhi.



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Lesson No:9	Vetter: Dr. Sanjay Tiwari
MANAGEMENT ACCOUNTING: NATURE, SCOPE AND TOOLS	

STRUCTURE

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- 9.1 Introduction
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9.0 LEARNING OBJECTIVES

After going through this lesson, you should be able to:

- Know the meaning, functions and limitations of financial accounting
- Know the meaning, nature and tools of management accounting
- Explain the functions and objectives of management accounting
- Understand the limitations of management accounting.

9.1 INTRODUCTION

Accounting is the language of business. Accounting as a historical description of financial activities is no longer acceptable. Over a period of time new dimensions have been added in the subject of accounting. In modern era, Accounting is regarded as service activity the function of which is to provide quantitative information about business operations to various parties who have directly or indirectly some stake in the business i.e. proprietors, creditors, investors, researchers, government and other agencies.

9.2 ACCOUNTING AND FINANCIAL ACCOUNTING

Accounting is mainly concerned with the collection, recording, classification and presentation of financial data for the use of many stakeholders. The role of accounting is changing day by day and now accounting is considered as a tool of management which provides vital information about the organization. In 1941, the American Institute of Certified Public Accountants (AICPA) defined accounting as: “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 character and interpreting the result thereof”.

In 1966, the American Accounting Association (AAA) defined accounting as: “Accounting is the process of identifying, measuring and communicating economic information to permit informed judgments and decisions by users of the information”.

In 1970, the Accounting Principles Board (APB) of the American Institute of Certified Public Accountants (AICPA) enumerated the functions of accounting as:



“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”.

On the basis of above definitions, accounting may be defined as the process of recording, classifying, summarizing, analyzing and interpreting the financial transactions and communicating the results to the parties which are interested in such information.

The term ‘Accounting’ can be classified into three categories:

- i) Financial Accounting
- ii) Cost Accounting
- iii) Management Accounting

The main objective of Financial Accounting is to find out the profitability and financial position of an organization. There are two financial statements i.e. Income Statement and Balance Sheet. The Income Statement is prepared to know the profit or loss of business operations for a particular period, i.e. a year which is called accounting period which may be calendar year, financial year or any other period of 12 months. The Balance Sheet is prepared to show the actual financial position of business/firm at the end of the year. Balance Sheet shows the financial position on a particular date. It consists of the position of assets and liabilities of business.

9.3 FUNCTIONS OF FINANCIAL ACCOUNTING

Financial accounting provides information related to the financial position of business and results of business operations to different stakeholders such as owners, creditors borrowers, government, banks, financial institutions etc. Followings are the functions of financial accounting:

Recording: Accounting is the art of recording financial transactions and events of a concern. It is not possible to remember each and every transaction of the business. The transaction and events are recorded in the Journal and Subsidiary Books. The Subsidiary Books may be Cash Book, Purchase Book, Sales Book, Purchase Return Book, Sales Return Book, B/R Book, B/P Book, and Journal Proper as per the requirement of the concern/firm.

Classifying: Classification is concerned with systematic arrangement of the recorded data with a view to group transactions or entries of one nature at one place. The work of classification is done in the book



called 'ledger'. The book contains on different pages individual account heads under which all financial transactions of similar nature are collected and recorded.

Summarizing: It involves presenting the classified data in a manner which is understandable and useful to the different stakeholders of business. Summarizing function leads to the preparation of the following financial statements:

- i) Trial Balance
- ii) Income Statement
- iii) Balance Sheet

Dealing with financial transaction: Accounting deals with only those transactions and events which are measurable in terms of money. Anything that cannot be measured in monetary terms does not form a part of financial accounting. For example, if a company has got a team of dedicated and trusted employees, it is a great of use to the business but since it is not a financial character, so it will not be recorded in the books of accounts of that business.

Analyzing and Interpreting: The recorded financial data are analyzed and interpreted in a manner so that the end users can make a meaningful judgment about the profitability and financial position of the business. Analysis and Interpretation are the terms which are used interchangeably but the term 'analysis' means methodical classification of data given in the financial statements and the term 'Interpretation' means explaining the meaning and significance of the data so simplified. Analysis of financial accounting data requires application of tools, techniques and methods whereas interpretation deals with representing the analyzed data in simple language.

Communicating: The profitability and financial position of the business are communicated through profit & loss Account and Balance Sheet. The parties which are interested in knowing the results or financial position of the business can make their own conclusions from financial statements.

Making information more reliable: Another important function of financial accounting is to make the information more useful and reliable. This is done by the use of international accounting standards and consistent use of accounting principles etc.

9.4 MEANING OF MANAGEMENT ACCOUNTING



The origin of Management Accounting can be traced to overcome the limitations of Financial Accounting. Financial Accounting is very useful to various stakeholders but it suffers from many limitations such as historical nature of data, provides information about the concern as a whole, cost control not possible, only actual costs are recorded, only quantitative information, lack of unanimity of accounting principles and problems of window dressing.

Management Accounting came into existence to reduce the limitations of financial accounting. Management Accounting comprises of two words; Management and Accounting therefore it is a study of managerial aspect of accounting. Management Accounting is the presentation of accounting information in such a way so as to assist management in policy formulation, control of execution and effectiveness. A small undertaking is generally managed by the owner himself. The owner is in touch with day to day working of the enterprise that also plans and controls the whole business himself. Since the owner is both the decision maker and implementer of such decisions, so he does not feel the necessity of any communication system and no additional information is required for taking the managerial decisions. All information needs for managerial decisions met by Income Statement and Balance Sheet. But the evolution of Joint Stock Company has resulted into large scale of production along with separation of ownership and management. In these large organizations, the decision making no more remains a matter of intuition and requires the evolution of effective information system for providing relevant information for taking managerial decisions. In other words, the accounting information required for taking managerial decision is the subject matter of management accounting.

Definitions of Management Accounting

1. **Anglo-American Council on Productivity:** “Management Accounting is the presentation of accounting information in such a way as to assists management in the creation of policy and the day-to-day operation of an undertaking”.

Management accounting deals with the presentation of information so that it is helpful to management. Management likes to base its policy decisions on some information and the information should be presented according to the needs of management. The main emphasis on this definition is on presentation of information and not the collection of the same.

2. **Robert N Anthony:** “Management Accounting is concerned with accounting information that is useful to management.”



3. **T.G. Rose:**“Management Accounting is the adaptation and analysis of accounting information and its diagnosis and explanation is such a way as to assist management.”
4. **Brown and Howard:**“The essential aim of management accounting should be to assist management in decision making and control.”
5. **Broad and Carmichael:**“The term ‘Management Accounting’ covers all those services by which the accounting department can assist top management and other departments in the formation of policy, the control of the execution and appreciation of its effectiveness.”
6. **Institute of Chartered Accountants of England and Wales:** “Any form of accounting which enables a business to be conducted more efficiently can be regarded as management accounting”.
7. **N.K. Bose:** “Management Accounting is accounting for effective management.”
8. **The American Accounting Association:** “Management Accounting includes the methods and concepts necessary for effective planning, for choosing among alternative business actions and for control through the evaluation and interpretation of performances.”
9. **The Association of Certified Corporate Accountants (USA) :** “The Application of accounting and statistical techniques to the specified purpose of producing and interpreting information designed to assist management in the function of promoting maximum efficiency and in envisaging, formulating and co-coordinating their execution.”

From the various definition discussed above, it is clear that accounting data are recorded, classified, summarized, analyzed and presented to the management in such a way that it is useful and helpful for taking managerial decisions effectively and systematically.

9.5 NATURE OF MANAGEMENT ACCOUNTING

Management accounting provides the data related to accounting to the management for taking various managerial decisions which helps in improving efficiency and effectiveness of managerial decisions. The following are the main characteristics of management accounting:

1. **Providing Accounting Information:** Management accounting provides the accounting information in such a way that is helpful for decision making. It is concerned with all such information's which are useful to management in decision making at different levels.
2. **Cause and Effect Analysis:** Financial accounting is limited to the preparation of financial accounts but management accounting also establishes cause and effect relationship between different



variables. If there is loss, the reasons for the loss will be probed. If there is profit then factors affecting profit will also be studied.

3. **Use of Special Techniques and Concepts:** Management Accounting uses special tools and techniques to provide and interpret information for managerial decision making. The techniques used in management accounting are; analysis of financial statements, standard costing, marginal costing; activity based costing and budgetary control.
4. **Internal Use:** Though Management Accounting is not mandatory like financial accounting, Information provided by management accounting is used for the internal control and generally not shared to external stakeholders.
5. **No Fixed Norms Followed:** Financial accounting is based on fixed norms and these norms should be strictly followed e.g. valuation of stock, method of charging depreciation etc., but in case of management accounting there are no fixed norms and management accountant can use the rules/norms in his own way. Therefore in case of management accounting, every concern uses its own rules and norms for analyzing the data or creation of any information for decision making.
6. **Increase in Efficiency:** Management accounting emphasizes on efficiency. The efficiency can be increased by setting standards followed by actual performance is measured so that management is able to pin point inefficient spots and corrective action can be taken which leads to increase in efficiency.
7. **Supplies Information and Not Decision:** Management accounting supplies information to the management as required. The decisions are to be taken by the top management. The quality of decision depends upon the caliber and efficiency of the management and how they use the information provided by management accountant.

9.6 TOOLS AND TECHNIQUES OF MANAGEMENT ACCOUNTING

Management accounting uses a number of tools and techniques to facilitate management in taking managerial decision for achieving business goals. Some of the important tools and techniques are mentioned below:

1. Financial Accounting and Policy
2. Analysis of Financial Statements
3. Historical Cost Accounting



4. Standard Costing and Variance Analysis
5. Marginal Costing and Cost-Volume Profit Analysis
6. Differential Cost Analysis
7. Cash Flow Statement
8. Funds Flow Statement
9. Revaluation Accounting
10. Budgetary Control
11. Responsibility Accounting
12. Accounting for Price level Changes
13. Life Cycle Costing
14. Value Analysis
15. Management Information System
16. Activity Based Costing
17. Total Quality Management
18. Target Costing
19. Inventory Control

9.7 FUNCTIONS OF MANAGEMENT ACCOUNTING

Management accounting deals with providing information in such a way that it is helpful to the management in controlling and running the organization in an efficient and effective manner. Some of the functions of management accounting are given below:

1. **Forecasting and Planning:** Forecasting and planning are very important tools for achieving the targets of the organization. The management accountant uses various techniques such as budgeting, standard costing, marginal costing, analysis of financial statements which are useful for forecasting and planning activities of a concern.
2. **Modification of data:** Management accounting helps in modifying accounting data in such a way that it is very useful to the management. For example, if cost data is required, it can be classified as material cost, labor cost, overhead cost, avoidable cost, fixed cost, variable cost etc. which may be very useful to the management. So, the management accountant classifies and modifies the data according to the requirement of the management.



3. **Financial Analysis and Interpretation:** Financial statement such as Income Statement and Balance Sheet provide only absolute value but the decision is taken on the relative values. For example, profits have relation/concerned with sales and capital employed. So, the management accountant compares the different values which are related and makes interpretation of the analysis.
4. **Facilitates Managerial Control:** Management accounting is very useful in controlling performance. For example, the standards/budgets are set up by using standard costing or budgetary control. The actual performance is recorded and deviations are calculated. It enables the management to assess the performance of each activity in an organization.
5. **Communication:** Communication is very important within the organization and with the outside world. The management accountant prepares various reports which are useful at different levels of management and employees. These reports are also communicated to the outsiders.
6. **Qualitative Information:** The Management accountant uses various kinds of qualitative information while providing information to the management. While preparing a budget, management accountant may not only use past figures but also assess the persons dealing with budget, consumer survey, macro analysis, political environment etc.
7. **Co-Ordinating:** Management accountant who acts as a coordinating agent helps in coordinating among different departments of the concern. The plans and performances of different departments are communicated to them. Master budget is prepared to co-ordinate the different budgets.
8. **Helpful in taking strategic decisions:** Management accounting helps in taking strategic decisions like replacement decision, expansion, diversification, make or buy decision, to enter in foreign markets etc.

9.8 OBJECTIVES OF MANAGEMENT ACCOUNTING

The main objective of management accounting is to provide accounting information in such a way so as to help to take corrective action. Aside from it, the following are the objectives of management accounting:

1. **Planning and policy formulation:** Management accountant prepares analysis of financial statements which are very useful for planning and policy formulation. He also prepares estimates for the future by using different techniques like budgetary control, standard costing etc. He also



suggests the best alternative for taking a decision. All these information supplied and opinions given by the management accountant facilitates planning and policy formulation.

2. **Helpful in Organizing:** Management accountant helps in organizing the activities of the organization by using the delegation of authority and fixing of responsibility. Management accounting helps in establishment of cost centers, preparation of budgets etc.
3. **Helpful in Co-coordinating:** Management accounting helps in coordinating the different activities of the organization. For example, while preparing purchase budget, production budget, sales budget, labor budget etc., he also prepares a master budget which helps in coordinating among different budgets.
4. **Helpful in Controlling:** Management accounting helps in controlling of different activities of the organization. Standard costing and budgetary control are the important techniques of controlling. The management is able to control performance of each and every individual with the help of techniques of management accounting.
5. **Helpful in Interpreting Financial Information:** Financial information is of technical nature and most of the time, managerial personnel are not able to understand the use and significance of these financial statements. Management accountant explains these statements to the management in a simple language by using ratios, charts, diagrams, index numbers etc., so that management can easily understand these figures and take appropriate decisions.
6. **Helpful in Communication:** Management accounting helps in keeping the management fully informed about the latest position of the business which facilitates the management in taking timely and right decisions. The management is being kept informed through regular financial reports and performance analysis of various departments to the management.
7. **Helpful in Qualitative Information:** Management accounting also helps in providing qualitative information to the management. Sometimes qualitative information is more important than quantitative information. For example information regarding the dedication of employees, customers, quality of competitor's etc. is supplied to the management for taking strategic decisions.
8. **Helpful in Decision Making:** Management accounting helps in decision making to the management by using techniques like marginal costing, differential costing, standard costing which helps in decisions such as pricing of products, make or buy decisions, discontinuance of product line etc.



- 9. Helpful in Tax Administration:** Management accounting helps in assessing various tax liabilities and depositing correct amount of taxes with the authorities.

9.9 IMPORTANCE OF MANAGEMENT ACCOUNTING

The importance of management accounting is increasing day by day due to increasing complexity of business, large scale of operations, globalized business and role of technology in business. Management Accounting can play an important role in the existing business scenarios. The following are the advantages of management accounting:

- 1. Increase in Efficiency:** Management accounting is helpful in increasing the efficiency of business operations. The targets of every department are fixed in advance and achievements of these targets are used as a tool of measuring their efficiency which helps in increasing the efficiency of departments and employees.
- 2. Proper Planning:** Management accounting provides accounting information which helps to plan various operations of the organization. The technique of budgeting is helpful in forecasting and planning of different departments. Budgets are prepared and then master budget is prepared for coordinating the various budgets.
- 3. Measurements of Performance:** The techniques of management accounting such as standard costing and budgetary control enable the management to measure the actual performance. Then actual performance is compared with standard performance, if there is any deviation corrective action is taken.
- 4. Cost Control and Cost Reduction:** Cost control and cost reduction are the mantra of success in competitive business world. The technique of management accounting such as standard costing and budgeting help the management to reduce and control the cost. The cost reduction helps in increasing the sales of the organization which helps in increasing the profitability of the organization.
- 5. Effective Decision Making:** Management accounting helps in effective decision making with the help of providing right, useful and timely information to the management. The management accountant converts or creates the accounting information which is directly helpful for taking effective decisions. For example when profits are compared with sales volume or output is



compared to capital employed it provides more relevant information to the management which results in effective decision making.

6. **Helpful in Management Control:** The tools and techniques of management accounting are helpful to the management in planning, coordinating and controlling activities of the organization. For example with the help of standard costing and budgetary control the management is able to know why actual performance is different from budgeted/standard performance. Thus deviations are detected and reported to the management.

9.10 LIMITATIONS OF MANAGEMENT ACCOUNTING

Though Management Accounting is very helpful for taking managerial decision, yet it suffers from the following limitations:

1. **Based on Accounting Information-** Management Accounting is based on the data supplied by financial and cost accounting. The effectiveness of management accounting depends on the accuracy and reliability of the accounting data. The financial accounting is based on some assumptions which also becomes the problem of management accounting.
2. **Lack of Knowledge:** The use of management accounting information requires the knowledge of a number of subjects/issues like accounting, statistics, economics, taxation, production etc. but the person who is taking the decisions may not have good knowledge of these subjects.
3. **Intuitive Decision:** It has been observed that management avoids lengthy information provided by management accounting while taking decisions. The management prefers the decision on intuition based which limits the usefulness of management accounting.
4. **No Substitute of Administration:** The tools and techniques of management accounting provide only information and not decisions and the decision are taken by the management. So, management accounting has supplementary services and has not final say in taking decisions.
5. **Costly Affair:** The installation of management accounting system in a firm requires large organizational structure which requires a lot of funds. Therefore, it cannot be utilized by the small organization.
6. **Personal Biasness:** There are some areas of management accounting where may be the problem of personal biasness. For example interpretation of analysis of financial statements depends upon the



capability, knowledge level, expertise and personal judgment of interpreter. Personal prejudices and biasness affect the objectivity of management accounting.

7. **Psychological Resistance:** The installation of management accounting system in an organization requires a lot of changes in organizational structure, rules and regulations. These changes are resisted by the management and employees of the organization because people are generating resistant to change.

9.11 DISTINCTION BETWEEN FINANCIAL ACCOUNTING AND MANAGEMENT ACCOUNTING

Financial accounting is mainly concerned with the recording, classifying, summarizing, interpreting and reporting of the day-to-day transactions of business. The financial accounting at the end of accounting period enables to prepare Income Statement and Balance Sheet. Income Statement depicts the profitability of the business and Balance Sheet tells the financial position of the business at a particular point of time. On the other hand, management accounting uses financial accounting and uses other information in such a way that these are helpful to the management for taking managerial decisions. In this way, financial accounting is very useful in management accounting. On this basis it can be concluded that financial accounting and management accounting are complimentary and are necessary in running the business efficiently and effectively. Despite this, there are some points of distinction between financial accounting and management accounting which are discussed as below:

Point of Distinction	Financial Accounting	Management Accounting
Objective	The main objective of financial accounting is to record, classify and summarize the financial data to know the financial position of the business and to find out the profit or loss at the end of accounting period.	The main objective of the management accounting is to reproduce/create the data into information which are useful for taking managerial decision e.g. formulation of plans and policies.
Nature	Financial accounting is mainly concerned with the historical data. It	Management accounting is mainly concerned with the future because all



	records any those transactions and events which have already taken place.	the decisions are related to future like; planning and policy formulation. Management accounting mainly uses projected data or estimated figures. Historical data is used for projection of data.
Statutory Requirements	Financial accounting is obligatory to satisfy various statutory provisions under company law and tax laws etc. There are set procedures in financial accounting.	Management accounting is not obligatory. It is only a service function and helpful in management. There are not set procedures in management accounting.
Precision	Financial accounting is very precise because transactions are recorded only when they have taken place.	Management accounting is not precise because projected figures are used in management accounting even though they may be based on financial accounting.
Monetary and Non-Monetary Measurements	Financial accounting deals with only monetary data because all the transaction and events are measured in monetary terms only.	Management accounting deals with monetary as well as non-monetary data. It takes qualitative data as well.
Accounting Principles	Financial accounts are governed by the generally accepted accounting principles because the information of financial accounting is used by outsiders.	There are no set of rules in management accounting as the requirements of the business determine the methods of presenting figures.
Users of Accounting information	Information of financial accounting is mainly used by external parties e.g. bankers, investors, shareholders,	Information of management accounting is mainly for the internal users i.e. management.



	creditors, employees, customers and Govt. etc.	
Subject Matter	Financial accounting deals with the all the activities of the business. The income statement shows the results of the business as a whole and balance sheet shows the financial position of the business as a whole.	The management accounting deals with different units separately, departments and cost centers. In management accounting, analysis of data and evaluation is done from different angles.
Reporting	Financial reports i.e. profit and loss account and balance sheet are prepared usually on a year to year basis. Nowadays, in case of company organization, the financial reports are prepared on quarterly basis.	Management accounting reports are prepared frequently i.e. monthly, weekly or even daily basis depending the requirements of management.
Accounting Method	Financial accounting is based on double entry system of accounting for recording the business transactions.	Management accounting is not based on double entry system of accounting.
Accounting Standards	Financial accounts are prepared as per accounting standards issued by ICAI.	Management accounting is not bound to use accounting standards used by ICAI.
Publication of Reports	Under Companies Act every registered company is supposed to supply a copy of profit and loss account and balance sheet to the Registrar of the Companies at the end of A financial year. So, it is mandatory to publish final accounts of the company.	Management accounting reports are prepared the use of management only and these are not published.



Quickness of reporting	Profit and loss account and balance sheet is prepared at the end of the year. So, the reporting of financial accounting is slow and time consuming.	Different information are required for taking managerial decisions and management is fed with reports at regular intervals. So, reporting of management accounting is very quick.
Audit	Under Company Act, auditing of financial accounting is compulsory.	Management accounting is based on projected data. So, it is not possible to get management accounts audited.

9.12 CHECK YOUR PROGRESS

There are some activities to check your progress. Answer the following:

1. The term management accounting was first coined in.....
2.coined the concept of management accounting.
3. Management accountancy is a structure for.....
4.is used in trend percentages and trend ratios.
5. The use of management accounting is.....

9.13 SUMMARY

In modern era, Accounting is regarded as service activity the function of which is to provide quantitative information about business operations to various parties who have directly or indirectly some stake in the business i.e. proprietor, creditors, investors, researchers, government and other agencies. Accounting is mainly concerned with the collection, recording, classification and presentation of financial data for the use of many stakeholders. The role of accounting is changing day by day and now accounting is considered as a tool of management which provides vital information about the organization. In 1941, the American Institute of Certified public Accountants (AICPA) defined accounting as : “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 character and interpreting the result there of”. The term ‘Accounting’ can be classified into three categories:



- i) Financial Accounting
- ii) Cost Accounting and
- iii) Management Accounting

The main objective of Financial Accounting is to find out the profitability and financial position of the organization. The two financial statements are the outcomes of financial accounting i.e. Income statement and Balance Sheet. Income Statement is prepared to know the profit or loss of business operations for a particular period, i.e. a year which is called accounting period which may be calendar year, financial year or any other period of 12 months. Balance Sheet is prepared to show the actual financial position of business at the end of the year. The Balance Sheet shows the financial position on a particular date.

Management Accounting came into existence to reduce the limitations of financial accounting. The Management Accounting is the presentation of accounting information in such a way as to assist management in policy formulation, control of execution and effectiveness of operations. A small undertaking is generally managed by the owner himself. The owner is in touch with day to day working of the enterprise and plans and control the whole business himself. As the owner is both the decision maker and implementer of such decisions, so he does not feel the necessity of any communication system and no additional information required for the managerial decisions. All information needs for managerial decisions are met by financial statements i.e. Income Statement and Balance Sheet. But the evolution of Joint Stock Company has resulted in a large scale of production along with separation of ownership and management. In these large organizations, the decision making no more remains a matter of intuition and requires the evolution of effective information system for providing relevant information for taking managerial decisions. In other words, the accounting information required for taking managerial decision is the subject matter of management accounting.

9.14 KEYWORDS

Trial Balance: Statement which is prepared to check the accounting errors.

Income Statement: A statement showing the results i.e. profit and loss from the operations of a business.



Balance Sheet: A statement showing the financial position of a business firm at a particular point of time. It includes assets and liabilities of business

Financial Accounting: Branch of accounting in which at the end the three financial statements are prepared i.e. Trial Balance, Income Statement and Balance Sheet.

Cost Accounting: Branch of accounting which is concerned with the determination of cost of products and services.

Management Accounting: Branch of accounting which facilitate managerial decision making.

9.15 SELF-ASSESSMENT TEST

1. What do you understand by Accounting? Discuss the functions of Financial Accounting.
2. Define the term Management Accounting. Explain the nature of Management Accounting.
3. Write a Detail note on tools and techniques of Management Accounting.
4. Elaborate the functions of Management Accounting.
5. Why there is a need of Management Accounting? Explain the objectives of Management Accounting.
6. Explain the importance and uses of Management Accounting.
7. What points should be kept in consideration while using Management Accounting.
8. Discuss the role of Management Accounting in an organization.
9. Differentiate the terms Financial Accounting, Management Accounting and Cost Accounting.

9.16 ANSWER TO CHECK YOUR PROGRESS

1. 1950
2. James H. Bliss
3. Decision Making
4. Static Analysis
5. Optional

9.17 REFERENCES/SUGGESTED READINGS

1. Sharma, R.K. & Gupta, Shashi K., Management Accounting, Kalyani Publication, New Delhi.



2. Horngren & Sundern, Introduction to Management Accounting, Prentice Hall of India, N.Delhi.
3. Anthony R.N. and Reece J.S., Management Accounting Principles, 6th ed., Homewood, Illinois, Richard D. Irwin, 1995.
4. Hansen & Mowen, Management Accounting, Thomson Learning, Bombay.
5. Anthony Robert and Hawkins David, Accounting: Text & Cases, McGraw Hill, 1999.
6. Jain, S.P and Narang, K.L., Advanced Cost Accounting, Kalyani Publishers, Ludhiana.
7. Jain, S.P and Narang, K.L., Cost & Management Accounting, Kalyani Publishers, Ludhiana.
8. Jain & Khan, Management Accounting, TMT, New Delhi.
9. Maheshwari, S.N., Accounting for Managers, Vikas Publication Pvt. Ltd.



Subject: Accounting For Managers	
Course Code: MBA-104	Author: Ashish Garg
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CASH FLOW STATEMENT

STRUCTURE

- 10.0 Learning Objective
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10.0 LEARNING OBJECTIVE

After reading this chapter you will be able to

- (a) Prepare a statement of changes in cash;
- (b) Make out a statement of sources and applications of cash; and
- (c) Understand that why after a high profit cash position become worst.

10.1 INTRODUCTION

The statement of changes in financial position based on working capital is of immense use in long-range financial planning. The long-term financing and investment activities are specifically portrayed. The net working capital requirements are shown as residual figures. However, the working capital concept may conceal or exclude too much. It treats increases in inventories and account receivable as equaling to an increase in bank overdraft. This is not a correct treatment. In fact, accrued expenses like wages and salaries may become payable in next 10 days or so: sundry creditor's bills may fall due for payment during the next one month, whereas bank overdraft may be for a longer period of, say three months or even more. Similarly, inventories and account receivables undergo a transformation before they become money assets. It is possible that there is sufficient net working capital as revealed by the statement of changes in financial position, and yet the firm may be unable to meet its current liabilities as and when they fall due. It may be due to a sizeable piling up of inventories and an increase in debtors. Caused by a slow-down in collections. The firm's failure to meet its short-term commitments, in spite of its sound long-range financial position and adequate profitability, may plunge it to technical insolvency. Therefore, in making plans for the more immediate future, the management is vitally concerned with a statement of cash flow, which provides more detailed information. Such a statement is useful for the management to assess its ability to meet obligation to trade creditors, to pay bank loans, to pay interest to debenture-holders and dividends to its shareholders. Furthermore, the projected cash flow statement prepared month wise or so can be useful in presenting information of excess cash in some months and shortage of cash in others. By making available such information in advance the statement of cash flow enables the management revise its plan. So avoid the technical insolvency and to get aware about the short-term liquidity position management have to make Cash Flow Statement.



10.2 MEANING OF THE CASH FLOW STATEMENT

Cash Flow Statement is a statement that describes the inflow (sources) and outflow (applications) of cash and cash equivalent in an enterprise during a specified period of time. Such a statement enumerates net effect of the various business transactions on cash and its equivalent and takes into account receipts and disbursement of cash. Cash flow statement summarizes the causes of changes in cash position of a business enterprise between dates of two balance sheets. According to AS-3 (revised), an enterprise should prepare a cash flow statement and should present it for each period for which financial statements are prepared. The term cash, cash equivalent and cash flow are used in the statement with the following meanings:

Cash comprises cash on hand and demand deposit with bank.

Cash Equivalents are short term highly liquid investments that are readily convertible into known amounts of cash and which are subject to an insignificant risk of changes in value. Cash equivalent are held for the purpose of meeting short term cash commitments rather than for investment or other purposes. An investment normally qualifies as a cash equivalent only when it has a short-maturity, of say, three months or less from the date of acquisitions.

Cash flow means movement of funds that may be toward outside called outflow of cash and that may be from outside to inside business called inflow of cash. In another words, flow of cash is said to have taken place when any transaction makes changes in the amount of cash and cash equivalent before happening of the transaction.

Cash flows exclude movements between items that constitute cash or cash equivalent because these components are part of the cash management of an enterprise rather than part of its operating, investing and financing activities. Cash management includes the investment of excess cash in cash equivalent.

In another words, a cash flow statement is a statement depicting changes in cash position from one period to another. For example, if the cash balance of a business is shown by its Balance Sheet in 31st Dec. 2013 at ` 20,000 while the cash balance as per its Balance Sheet on 31<sup>st</sup> Dec. 2014 is ` 30,000, there has been an inflow of cash of `10,000 in the year 2014 as compared to the year 2013. The cash flow statement explains the reasons for such inflows or outflows of cash, as the case may be. It also



helps management in making plans for the immediate future. A projected cash flow will be available to meet obligation to trade creditors, to pay bank loans and to pay dividend to the shareholders.

10.3 PURPOSE AND USES OF CASH FLOW STATEMENT

The main purpose of the statement of cash flows is to provide relevant information about the cash receipts and cash payments of an enterprise during a period. The information will help users of financial statements to assess the amounts, timing and uncertainty of prospective cash flows to the enterprise. The statement of the cash flows is useful to them in assessing an enterprise's liquidity, financial flexibility, profitability and risk. It also provides a feedback about the previous assessments of these factors. Investors, analyst, creditors, managers and others will find the information in the statement of cash flows helpful in assessing the following:

1. It is very useful in the evaluation of cash position of a firm.
2. A projected cash flow statement can be prepared in order to know the future cash position of a concern so as to enable a firm to plan and coordinates its financial operations properly.
3. A comparison of historical and projected cash flow statement can be made so as to find the variation and deficiency or otherwise in the performance so as to enable the firm to take immediate and effective actions.
4. A series of intra-firm and inter-firm cash flow statement reveals whether the firm's liquidity is improving or deteriorating over a period of time.
5. Cash flow statement helps in planning the repayment of loans, replacement of fixed assets and other similar long term planning of cash.
6. Cash flow analysis is more useful and appropriate than funds flow analysis for short-term financial analysis as in a very short period it is cash, which is more relevant, than the working capital for forecasting the ability of the firm to meet its immediate obligations.
7. Cash flow statement prepared according to AS-3 is more suitable for making comparison than the funds flow statement, as there is no standards format used for the same.
8. Cash flow statement provides information of all activities classified under operating, investing and financing activities.



10.4 STRUCTURE OF CASH FLOW STATEMENT

According to AS-3, the cash flow statement should report cash flows during the period classified by operating, investment and financing activities as follows:

- Cash flow from operating activities
- Cash flow from investing activities
- Cash flow from financing activities

1. Cash flow from operating activities involves cash generated by producing and delivering goods and providing services. Cash inflow includes receipts from customers for sales of goods and services (including collection of debtors). Cash outflow from operating activities include payments to suppliers for purchase of material and for services, payment to employees for services and payment to governments for taxes and duties. Then by comparing the inflow and outflow of cash we can determine the net value of cash flows. If the inflows are more than outflows then it is called cash generated from operating activities or if cash outflows are more than cash inflows then it is called cash lost in operating activities. This cash flow is a key indicator of the extent to which the operations of the enterprise have generated sufficient cash flows to maintain the operating capability of the enterprise, pay dividend, repay loans and make new investments without recourse to external sources of financing. Information about the specific component of historical operating cash flows is useful, in conjunction with other information, in forecasting future operating cash inflows.

Examples of cash flows from operating activities are:

- Cash receipts from the sale of goods and rendering the services.
- Cash receipts from royalties, fees, commission and other revenue.
- Cash payment to suppliers of goods and services.
- Cash payment to and on behalf of employees.
- Cash receipts and cash payment of an insurance enterprise for premium and claims, annuities and other policy benefits.



- Cash payment and refund of income tax unless can be specifically identified with financing and investing activities.
- Cash receipts and payments relating to futures contract, forward contracts, option contracts and swap contracts when the contracts are held for dealing or trading purpose.

Some transactions, such as the sale of an item of plant, may rise to a gain or loss that is included in the determination of the net profit or loss. However, the cash flow relating to such transactions are cash flows from investing activities.

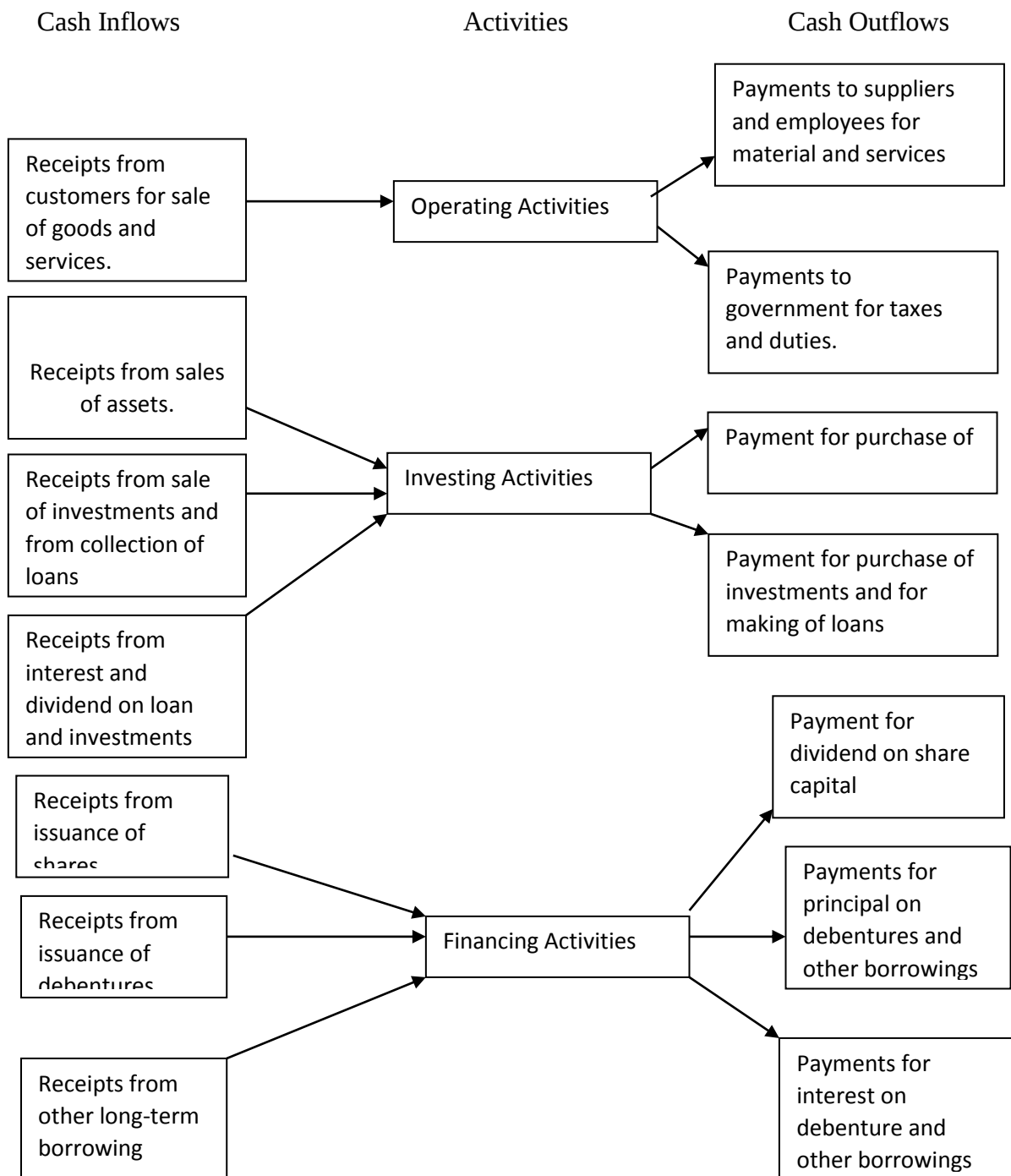
2. **Cash flow from investing activities involves** the cash generated by making and collecting loans and acquiring and disposing of debts and equity instruments and fixed assets. Cash inflows from investing activities are receipts from collection of loans, receipts from sales of shares, debts or similar instruments of other enterprises, receipts from sale of fixed assets and interest and dividend received from loans and investments. Cash outflows from investing activities are disbursement of loans, payments to acquire share debts or similar instruments of other enterprise and payment to acquire fixed assets. Cash receipts and payments relating to futures contract, forward contracts, option contracts and swap contracts except when the contracts are held for dealing or trading purpose or the payments or receipts are classified as financing activities.
3. **Cash flows from financing activities** involves cash generated by obtaining resources from owners and providing them with a return on their investment, borrowing money and repaying amounts borrowed and obtaining and paying for other resources obtained from creditors on long-term credit. Cash flows from financing activities involve the proceeding from issuing share or other similar instrument, debentures, mortgages, bonds and other short term or long-term borrowings. Cash outflow from financing activities are payments of dividend, payments to acquire or redeem shares to other similar instruments of the enterprise, payment of amount borrowed, principal payment to creditors who have extended long-term credit and interest paid.

It is important to note down that the classification of the cash flows into operating, investing and financing categories will depend upon the nature of the business. For example, for financial institutions like banks lending and borrowing are parts of their business operations. So the



income and expenditure regarding the borrowing and lending will be included in the cash flow from operating activities.

Figure 10.1 : Structure of Cash Flows





10.5 TREATMENT OF SOME TYPICAL ITEMS

AS-3 (Revised) has also provided for the treatment of cash flow from some peculiar items as discussed below:

- 1) **Extraordinary items:** The cash flow from extraordinary items just like winning the lottery, loss by fire etc. either classified as arising from operating, investing or financing activities as appropriate and separately disclosed in the cash flow statement to enable users to understand their nature effect on the present and future cash flows of the enterprise.
- 2) **Interest and Dividend:** A great care have to be taken regarding the interest and dividend as receivable of the interest and dividend is a result of investment so it is considered as cash inflow from investing activities while payment of dividend and interest arise due to collection of finance so it is termed as cash outflow from financing activities. But in case of a financial institution, payment and receipts of interest and dividend are related to their main business so these items are treated under the head of cash flow from operating activities.
- 3) **Taxes on Income:** Taxes paid by the business should be treated as cash outflow generated by operating activities if nothing is stated in the problem but if it is specified in question that the tax arise due to financing and investing activities then that tax should be treated under respective activities.
- 4) **Acquisitions and Disposal of Subsidiaries and other Business Units:** The aggregate cash flows arising from acquisitions and from disposal subsidiaries or other business units should be presented separately and classified as investing activities. The separate presentation of the cash flow effects of acquisitions and disposal of subsidiaries and other business units as single line items helps to distinguish these cash flows from other cash flows. The cash flow effects of disposal are not deducted from those of acquisitions.
- 5) **Foreign Currency Cash Flow:** Cash flows arising from transactions in a foreign currency should be recorded in an enterprise's reporting currency by applying to the foreign currency amount the exchange rate between the reporting currency and the foreign currency at the date of the cash flow. The effect of the changes in exchange rates on cash and cash equivalents held in a



foreign currency should be reported as a separate part of the reconciliation of the changes in cash and cash equivalents during the period.

Unrealized gains and loss arising from changes in foreign exchange rates are not cash flows. However, the effect of exchange rate changes on cash and cash equivalent held is reported in the cash flow statement in order to reconcile the value of cash and cash equivalent at the beginning and the end of the period. This amount is presented separately from cash flows from operating, investing and financing activities and includes the difference, if any.

- 6) **Non-Cash Transactions:** There are some transactions, which do not affect the cash positions of the business directly but affect the capital and asset structure of an enterprise. Such as the conversion of debts into equity, the acquisitions of an enterprise by means of issue of shares etc. These transactions should not be included in the cash flow statement but due to their importance these can be shown as additional information under the statement.

10.6 FORMAT OF CASH FLOW STATEMENT

AS-3 (Revised) has not provided any specific format for preparing a cash flow statement. The cash flow statement should report cash flows during the period classified by operating, investing and financing activities. A widely used format of cash flow statement is given below.

COMPANY'S NAME:.....

Cash Flow Statement

For the year ended.....

Particulars	₹	₹
Cash flow from Operating Activities		
(List of the individual inflows and outflows)	.....	
Net Cash Flow from Operating Activities	.....	
Cash Flows from Investing Activities		
(List of individual inflows and outflows)	.....	
Net Cash Flows from Investing Activities	.....	
Cash Flows from Financing Activities		
(List of individual inflows and outflows)	.....	
Net Cash Flows from Financing Activities		.....
Net increase (Decrease) in Cash and Cash Equivalents	.....	
Cash and cash Equivalent at the Beginning of the period	.....	
Cash and cash Equivalent at the End of the period	.....	.....



10.7 PROCEDURE FOR PREPARING A CASH FLOW STATEMENT

Let us study how to construct the cash flow statement. As shown in the format of the cash flow statement, all the cash inflows and outflows will be classified according to operating, investing and financing activities. Following are the procedures of the calculation of cash flow from different activities: -

Determination of cash flow from operating activities: The Profit and Loss Account shows whether an enterprise's operations have results in profit or loss, but it does not indicate cash inflows and cash outflows from operating activities. This is because net profit is computed using the accrual basis of accounting. Revenue is recorded when earned although the cash for some of them may not have been collected, and expenses are recorded when incurred although all of them may not have been paid in cash. Further, depreciation, amortization and provision for doubtful debts do not reflect cash outflows in both current and future periods. Thus, the net profit will not indicate the net cash flow from operations. In order to arrive at net cash flow from operating activities, it is necessary to restate revenues and expenses on a cash basis. This is done by adjusting for the effects of transactions considered in preparing the Profit and Loss Account that did not involve cash inflows or cash outflows. There are two methods for reporting the net cash flow from operating activities.

- 1) Direct method
- 2) Indirect method

1) Direct method: Under this method, cash receipts from operating activities and cash payments for operating expenses are calculated to arrive at cash flows from operating activities. The difference between the cash receipts and cash payments is the net cash flow provided by operating activities.

Cash flow from operating activities can be calculated as follows:

Cash Flow from Operating Activities:

Cash received from customers	XXX
Cash paid to suppliers and employees	(XXX)
Cash generated from operations	<u>XXX</u>
Income tax paid	(XXX)
Cash flow before extraordinary item	<u>XXX</u>
Extraordinary item	(XXX)
Net cash flow from operating activities	<u>XXX</u>



Cash received from customers: Cash receipts from customers includes cash sales and collections of debtors arising from credit sales. Cash sales result in cash inflows in the current period. However, collections from customers require additional calculations, sales from an earlier period may be collected in the current period, sales from the current period may be collected in future period or some debtors may not be collected at all. As result, collections from customers in current period are seldom equal to credit sales. The relationship among the credit sales, change in debtors and collections from customers may be stated in equation form as follows:

Cash received form customers= Sales + Opening balance of trade debtors (Debtors & B/R) – Closing balance of trade debtors.

Cash paid to suppliers and employees: After calculation of cash received from customers the second thing that would be calculated is cash paid to suppliers and employees in lieu of services and goods received from them. Cash paid to customers and employees can be calculated by using following equation:

Cash Paid to suppliers and employees = Purchases for the year as per statement of profit + Opening trade creditors (Creditors & B/P) – Closing trade creditors + selling and administrative expenses + prepaid expenses at the end of the year – prepaid expenses in the beginning of the year.

Income tax paid: The amount of the income tax paid usually differs from the estimated income tax expense, appearing on the Profit and Loss Account. Also, a part of the income tax expenses for a year is paid in the following year. The difference between income tax payment and income tax expense result in a change in income tax payable. The following equation shows this relationship:

Tax paid during the year = Opening balance of tax unpaid + Provision made during the year – Closing balance of tax unpaid.

Let us take an example to understand these treatments.

Illustration 10.1: The Board of Director of Amit Ltd. was not able to decide that why the company are not having adequate cash balance. The amount of profit of the company for the year 2013 was ` 90,000. This was highest amount as compared to previous years. You have been asked to prepare a Cash Flow Statement with the help of following information using direct method.



Balance Sheet

(₹ in thousands)

Liabilities	Dec.2012	Dec.2013	Assets	Dec.2012	Dec.2013
Issue and paid up capital	1,575.00	1,575.00	Long term assts	1,125.00	2,047.50
Profit and Loss A/c	157.00	225.00	Closing stock	337.50	900.00
Mortgage Loan		900.00	Prepayments	45.00	90.00
Tax unpaid	22.50	67.50	Trade debtors	112.50	450.00
Trade creditors	315.00	877.50	Cash	450.00	157.50
	2,070.00	3,645.00		2,070.00	3,645.00

Statement of Profit

(For the year ended Dec.2013)

Particulars	₹ ,000	₹ ,000
Sales		2,250.00
Opening stock	337.50	
Add. Purchases	2205.00	
	2,542.50	
Less Closing stock	900.00	1642.50
Gross profit		607.50
Less:		
Administrative expenses	247.50	
Depreciation	180.00	
Taxes (Provision)	90.00	517.50
Net Profit		90.00
Payment of dividends		22.50
		67.50
Add. Profit and loss a/c (Jan.2013)		157.50
Balance on Dec. 2013		225.00



You are also informed that a new building was purchased on 15th June 2013 for ₹11,02,500.

Solution:

Cash Flow Statement (For the year ended 31st Dec.2013)		
Particulars	₹, 000	₹, 000
Cash Flow from Operating Activities		
Cash Received from Customers (Note-1)	1,912.50	
Cash Paid to Suppliers and Employees (Note-2)	(1,935.00)	
Cash generated from Operating Activities	(22.50)	
Income Tax Paid (Note-3)	(45.00)	
Net Cash Used in Operating Activities		(67.50)
Cash Flow from Investing Activities		
Purchase of New Building	(1,102.50)	
Net Cash Used in Investing Activities		(1,102.50)
Cash Flow from Financing Activities		
Raising of Mortgage Loan	900.00	
Dividend Paid	(22.50)	
Net Cash Provided by Financing Activities		877.50
Net decrease in cash and cash equivalent		(292.50)
Opening balance of cash		450.00
Closing balance of cash		157.50

Working Notes:

1. Calculation of cash received from customers:

Sales for the year as per the statement	2,250.00
Add: Trade debtors in the beginning	112.50
	2362.50
Less: Trade debtors at the end	450.00
Cash received from customers	1912.50

2. Calculation of cash paid to suppliers and employees:



Purchase for the year as per the statement of profit	2,205.00
Add: Trade creditors in the begging	315.00
	2520.00
Less: Trade creditors at the end	877.50
Cash paid to creditors for purchase of goods (A)	1642.50
Administrative expenses as per the statement of profit	247.50
Add: Prepaid exp. at the end	90.00
	337.50
Less: Prepaid Exp. In the begging	45.00
Cash paid for services (B)	292.50
Cash paid to suppliers and employees (A+B)	1,935.00
3.Calculation of tax paid:	
Opening balance of tax unpaid	22.50
Add: Provision made during the year	90.00
	112.50
Less: Closing balance of tax unpaid	67.50
Tax paid during the year	45.00

2) Indirect Method: Under the indirect method, the net cash flow from operating activities is determined by adjusting net profit or loss for the effect of:

- i) Non cash items such as depreciation, provision, deferred taxes and unrealized foreign exchange gains and losses
- ii) Changes during the period in inventories and operating receivables and payables.
- iii) All other items for which cash effects are investing or financing flows.

The indirect method is also called the reconciliation method as it involves reconciliation of net profit or loss as given in the profit and net cash flow from operating activities as shown in the cash flow statement. Cash flow from operating activities by using the indirect method can be calculated as follows:



Net Profit before Tax and Extraordinary Items	XXX	
Add: Non-cash and non-operating items, which have already been Debited to PSL A/c;		
Depreciation		Transfer to
reserve and provisions		
Goodwill written off		
Preliminary expenses written off		
Other intangible assets written off just as discount or loss on issue of Shares, debentures and underwriting commission		
Loss on disposal of fixed assets		
Loss on sale of investment		
Foreign exchange loss	XXX	
	XXX	
Less: Non-cash and non-operating items, which have already been Credited to PsL A/c		
Gain on the sale of fixed assets		
Profit on sale of investment		
Income from interest or dividend		
Appreciation in values of fixed assets		
Reserve written back		
Foreign exchange gains	(XXX)	
Operating profit before adjustment of working capital changes	XXX	
Adjustment for changes in current operating assets and liabilities:		
Add: Decrease in accounts of current assets (except cash and cash equivalents)	XXX	
Add: Increase in accounts of current operating liabilities (except Bank overdraft)	XXX	
Less: Increase in accounts of current assets	(XXX)	
Less: Decrease in accounts of current liabilities	(XXX)	



Cash generated from operation before tax	XXX
Less: Tax paid	(XXX)
Cash flow before extra-ordinary items	XXX
Add/Less: Extra-ordinary items	XXX
Net cash flow from operating activities	XXX

Let us take an example to clear the above points.

Illustration 10.2: The following are the comparative Balance Sheet of Ashish Ltd. as on 31st Dec.2013 and 2014.

Balance Sheet					
Liabilities	2013	2014	Assets	2013	2014
Share capital (share of `10 each)	3,50,000	3,70,000	Land	1,00,000	1,50,000
Profit & Loss A/c	50,400	52,800	Stock	2,46,000	2,13,500
9% Debentures	60,000	30,000	Goodwill	50,000	25,000
Creditors	51,600	59,200	Cash & Bank	42,000	35,000
			Temporary Investment	3,000	4,000
			Debtors	71,000	84,500
	5,12,000	5,12,000		5,12,000	5,12,000

Other particulars provided to you are: A) Dividend declared and paid during the year `17,500 B) Land was revaluated during the year at ` 1,50,000 and profit on the revaluation transferred to PsL A/c. You are required to prepare a cash flow statement for the year ended 31/12/14.

Solution:

Cash Flow Statement (for the year ended 31st Dec.2014)		
Particulars		
Cash Flow from Operating Activities		
Increase in the balance of P/L A/c	2,400	
Adjustment for non-cash and non-operating items:		



Profit on revaluation of land	(50,000)	
Goodwill written off	25,000	
Dividend declared	17,500	
Operating profit before working capital changes	(5,100)	
Adjustment for changes in current operating assets and liabilities:		
Increase in creditors	7,600	
Decreases in stock	32,500	
Increase in debtors	(13,500)	
Cash generated from operating activities	21,500	
Income tax paid	-----	
Cash flow from extra ordinary items	-----	
Net cash flow from operating activities		21,500
Cash flow from investing activities	-----	-----
Cash flow from financing activities		
Proceeds from issue of share capital	20,000	
Redemption of debentures	(30,000)	
Dividend paid	(17,500)	
Net cash used in financing activities		(27,500)
Net decrease in cash and cash equivalent		(6,000)
Cash and cash equivalent at the beginning of the year		45,000
Cash and cash equivalent at the end of the year		39,000

10.8 LIMITATIONS OF CASH FLOW STATEMENT

Despite a numbers of uses, cash flow statement suffers from the following limitations:

1. As cash flow statement is based on cash basis of accounting, it ignores the basic accounting concepts of accrual basis.
2. Some people feel that as working capital is a wider concept of funds flow statement provides a more complete picture than cash flow statement. So it is based on narrow concept.
3. Cash flow statement is not suitable for judging the profitability of a firm as non-cash charges are ignored while calculating cash flows from operating activities.



10.9 COMPARISON BETWEEN FUNDS FLOW AND CASH FLOW STATEMENT

The term funds have a variety of meaning. In narrow sense, it means cash and the statement of changes in the financial position prepared on cash basis is called a cash flow statement. In the most popular sense, the term funds refer to working capital and a statement of changes in the financial position prepared on this basis is called a funds flow statement. A cash flow statement is much similar to a funds flow statement as both are prepared to summarize the causes of changes in the financial position of a business. However the following are the main differences between funds and a cash flow statement.

Difference between Funds Flow Statement and Cash Flow Statement		
Basis of Difference	Funds Flow Statement	Cash Flow Statement
1. Basis of Concept	It is based on a wider concept of funds, i.e. working capital	It is based on a narrow concept of funds, i.e. cash
2. Basis of Accounting	It is based on accrual basis of accounting.	It is based on cash basis of accounting.
3. Schedule of changes in working capital	Schedule of changes in working capital is prepared to show the changes in current assets and current liabilities.	No schedule of changes in working capital is prepared.
4. Method of Preparing	Funds flow statement reveals the sources and applications of funds. The net difference between sources and applications of funds represents net increase in working capital.	It is prepared by classifying all cash inflows and outflows in term of operating, investing and financing activities. The net difference represents the net increase or decrease
5. Basis of Usefulness	It is useful in planning intermediate and long term financing.	It is useful in planning intermediate financing.
6. Discription	It describes the reasons for change in working capital.	It describes the reasons for changes in cash and cash equivalent.

Illustration 10.3: Western Telecommunication Company's Profit and Loss Account for the year ended December 31, 2014, and its balance sheet as on Dec. 2013 and Dec. 2014 are as follows:

**Western Telecommunication Company: Profit and Loss Account**

(For the year ended Dec. 2014)

Sales	5,70,000
Interest Income	2,000
Gain on sale of investment	7,000
Cost of goods sold	4,45,000
Depreciation Expenses	89,000
Selling and Distribution Exp.	46,000
Interest Exp.	14,000
Loss on sale of plant and machinery	3000
Profit before income tax and extraordinary items	(18000)
Income Tax	-----
Profit before extraordinary items	(18,000)
Extraordinary item: Insurance proceeds from Earthquake loss claim	-----
Net Profit	(18,000)

WESTERN TELECOMMUNICATION COMPANY: Balance Sheet as on 31st December

Sources of Funds	2013	2014
Shareholder funds		
Equity share capital	1,55,000	85,000
Profit and loss account	1,02,000	1,20,000
Total share holder fund	2,57,000	2,05,000
Loan funds		
Secured loans	97,000	57,000
Unsecured loans	1,81,000	1,91,000
Total loan funds	2,78,000	2,48,000
Current liabilities		
Bill payable	6,000	9,000



Creditors	24,000	1,78,000
Income tax payable	9,000	17,000
Total current liabilities	39,000	2,04,000
Total source of funds	5,74,000	6,57,000
Applications of funds		
Fixed assets		
Plant and machinery	7,20,000	5,40,000
Less accumulated depreciation	3,62,000	3,05,000
Fixed assets (net)	3,58,000	2,35,000
Investment	18,000	66,000
Current assets		
Inventories	1,51,000	1,19,000
Debtors (less provision of doubtful debts 8,000 & 12,000)	29,000	1,66,000
Prepaid expenses	6,000	2,000
Cash and cash equivalent	12,000	69,000
Total current assets	1,98,000	3,56,000
Total application of funds	5,74,000	6,57,000

Additional information:

- i. Purchased machinery costing `1,50,000 with cash.
- ii. Sold machinery with cost of `45,000 and accumulated depreciation of `32,000 for `10,000.
- iii. Purchased investment for ` 30,000.
- iv. Sold investment costing ` 78,000 for `85,000
- v. Purchased machinery for ` 75,000 in exchange for secured debentures.
- vi. Issued at par share for ` 50,000
- vii. Converted secured debentures of ` 20,000 to equity share of ` 10 at par
- viii. Repaid unsecured debentures of ` 10,000.
- ix. Redeemed secured debentures of ` 15,000 at par
- x. Wrote off ` 14,000 of debtors when a customer become insolvent and provided ` 10,000 for doubtful, included in selling and distribution expenses.

**Required**

1. Prepare the statement of cash flows according to direct method.
2. Prepare the statement of cash flows according to indirect method.

Solution:**1. Statement of Cash Flows- Direct Method****WESTERN TELECOMMUNICATION COMPANY: Statement of Cash Flows**

(For the year ended Dec.2014)

Cash Flow from Operating Activities

Cash received from customers (I)	6,97,000	
Cash paid to suppliers and employees (ii)	(674,000)	
Cash generated from operations	23,000	
Income tax Paid (iii)	(8,000)	
Cash flow before extraordinary items	15,000	
Extraordinary items	0	
Net cash provided by Operating Activities		15,000

Cash Flows from Investing Activities

Purchase of plant and machinery	(150,000)	
Proceeds from sale of plant and machinery	10,000	
Purchase of investments	(30,000)	
Proceeds from sale of investment	85,000	
Interest received	2,000	
Net Cash Used in Investing Activities		(83,000)

Cash Flows from Financing Activities

Proceeds from Issuance of share capital	50,000	
Repayment of unsecured loans	(10,000)	
Redemption of secured debentures	(15,000)	
Interest paid	(14,000)	
Net Cash Provided By Financing Activities		11,000



Net Decrease in Cash and Cash Equivalent	(57,000)
Cash and Cash Equivalent at beginning of period	69,000
Cash and Cash Equivalent at end of period	<u>12,000</u>

Supplemental schedule of non-cash investing and financing activities

1. The company purchased for ` 75,000 in exchange for secured debentures.
2. The company converted secured debentures of ` 20,000 to equity shares of ` 10 at par.

Working Notes:

- i. $(5,70,000 + 1,78,000 - 37,000 - 14,000)$
- ii. $(4,45,000 + 46,000 - 1,19,000 - 2,000 + 9,000 + 1,78,000 + 1,51,000 + 6,000 - 6,000 - 24,000 - 10,000)$
- iii. $(17,000 - 9,000)$

2. Statement of Cash Flows – Indirect Method

WESTERN TELECOMMUNICATION COMPANY: Statement of Cash Flows

(For the year ended Dec.2014)

Cash Flow from Operating Activities	(18,000)
Net profit before income tax and extraordinary items	
Adjustment to reconcile Net Profit to net cash flow from Operating Activities	
Depreciation	89,000
Provision for doubtful debts	10,000
Loss on sale of plant and machinery	3,000
Gain on sale of investment	(7,000)
Interest expenses	14,000
Interest income	(2,000)
Operating profit before working capital changes	<u>89,000</u>
Decrease in Debtors	1,27,000



Increase in inventories	(32,000)	
Increase in Prepaid expenses	(4,000)	
Decrease in bills payable	(3,000)	
Decrease in creditors	(154,000)	
Cash generated from operations	<u>23,000</u>	
Income tax paid	(8,000)	
Cash flow before extraordinary items	<u>15,000</u>	
Extraordinary items: Proceed from Earthquake Insurance Claim	0	
Net Cash Provided by Operating Activities	<u>15,000</u>	15,000
Cash Flows from Investing Activities		
Purchase of plant and machinery	(150,000)	
Proceeds from sale of plant and machinery	10,000	
Purchase of investments	(30,000)	
Proceeds from sale of investment	85,000	
Interest received	2,000	
Net Cash Used in Investing Activities	<u>(83,000)</u>	(83,000)
Cash Flows from Financing Activities		
Proceeds from Issuance of share capital	50,000	
Repayment of unsecured loans	(10,000)	
Redemption of secured debentures	(15,000)	
Interest paid	(14,000)	
Net Cash Provided By Financing Activities	<u>11,000</u>	11,000
Net Decrease in Cash and Cash Equivalent	<u>(57,000)</u>	(57,000)
Cash and Cash Equivalent at beginning of period		69,000
Cash and Cash Equivalent at end of period		<u>12,000</u>

Supplemental schedule of non-cash investing and financing activities

1. The company purchased for ₹ 75,000 in exchange for secured debentures.
2. The company converted secured debentures of ₹ 20,000 to equity shares of ₹ 10 at par.



10.10 CHECK YOUR PROGRESS

State whether the following statements are True or False:

1. Cash Flow Statement summaries the canvas of changes in cash position of a business between dates of two balance sheets.
2. Cost Flow Statement provides information of all activities classified under operating and financing activities.
3. Net profit always indicate the net cash flow from operations.
4. Cash Flow statement does not ignore the accounting concepts of accrual basis.
5. Cash outflow from financing activities are payments of dividend, payment of account borrowed etc.

10.11 SUMMARY

Cash Flow Statement is a statement which describes the sources and applications of cash equivalent in an enterprise during a particular period of time. According to AS-2 an enterprise should prepare a cash flow statement and should present it for each period for which financial statements are prepared. Cash Flow Statement is useful to various parties in assessing an enterprise's financial flexibility, liquidity, risk and profitability. Cash Flow Statement should report cash flows during the period by operating, investing and financial activities. Cash Flow from operating activities can be computed by direct method and indirect method. A Cash Flow Statement is much similar to a funds flow statement as both are prepared to summarise the causes changes in the financial position of a business but there are many difference between the two.

10.12 KEYWORDS

Cash Flow Statement: It summarise the causes of changes in cash position of a business enterprise between two dates of balance sheet.

Cash Flow from operating activities: This involves cash generated by producing and delivering goods and providing services.

Non-cash Transaction: These transaction do not affect the cash position of a business directly but affect the capital and asset structure of an enterprise.

10.13 SELF-ASSESSMENT TEST

1. Define the term 'Cash Flow'. Explain the objective of cash flow analysis.
2. How does the statement of cash flows differ from the funds flow statement?
3. What is the purpose of statement of cash flows? How is it prepared? Explain and illustrate.



4. Why is the statement of cash flow considered necessary in addition to the profit and loss account and balance sheet?
5. Explain the procedure of preparing a cash flow statement.
6. The comparative balance sheet for Varun Ltd. are given below:

	Dec.2012	Dec.2013
Assets:		
Cash and Bank Balance	82,000	22,000
Debtors	1,04,000	24,000
Stock	1,12,000	60,000
Prepaid Expenses	22,000	14,000
Plant and Machinery	3,80,000	3,60,000
Goodwill	36,000	40,000
	<u>7,36,000</u>	<u>5,20,000</u>
Liabilities:		
Creditors	30,000	14,000
Provision for Depreciation	1,00,000	60,000
Debentures	1,02,000	1,02,000
Premium on Debenture Issue	12,000	18,000
Share Capital	1,90,000	90,000
Share Premium	30,000	
Reserve and Surpluses	2,72,000	2,36,000
	<u>7,36,000</u>	<u>5,20,000</u>

The following additional information is available from the accounting records for 2012.

1. Debenture premium of ` 6,000 was amortized during the year.
2. Dividend paid ` 6,000.

You are required to prepare a cash flow statement.

7. Prepare a cash flow statement of Anoop Business Corporation from the following information's:

Balance Sheet

As on Jan, 1st & Dec. 31st 2017



	Jan.1	Dec.31
Assets		
Cash and Bank	40,000	44,400
Account Receivables	10,000	20,700
Inventories	15,000	15,000
Land	4,000	4,000
Business Premises	20,000	16,000
Plant and Equipment	15,000	17,000
Accumulated Deprecation	(5,000)	(2,800)
Patents and Trade marks	1,000	900
Total Assets	<u>1,00,000</u>	<u>1,15,200</u>
Liabilities:		
Current Liabilities	30,000	32,000
Bonds Payable	22,000	22,000
Bonds Payable Discount	(2,000)	(1,800)
Capital Stock	35,000	43,500
Retained Earning	15,000	19,500
Total Liabilities	<u>1,00,000</u>	<u>1,15,200</u>

Additional Information

- Income for the period `10,000.
- A building the cost `4,000 and which had a book value of ` 1,000 was sold for `1,400.
- Depreciation charged for the year ` 800
- There was ` 5,000 issue of capital stock
- Cash dividend of ` 2,000 and stock dividend of ` 3,500 was declared.

8. From the following particulars, prepare a cash flow statement for the year ended 31st March 2017

- i) Total sale for the year were ` 20,50,000 out of which cash sales amounted to ` 14,20,000.



- ii) Total purchases for the year were ` 15,30,000 out of which cash purchases amounted to ` 10,20,000.
- iii) Cash collected from creditors during the year amounted to ` 4,80,000.
- iv) Cash paid to suppliers was ` 4, 50,000.
- v) Income tax paid ` 80,000.
- vi) Equity shares of the face value of ` 2,00,000 were issued at a premium of 5% during the year.
- vii) ` 25,000 was paid as dividend for the year ended 31st March 2014.
- viii) Redeemable preference share of the face value of ` 1,00,000 were redeemed during the year at a premium of 10%.
- ix) New machinery was purchased for ` 30,000 on 1st Jan. 2014.
- x) Depreciation for the year was ` 40,000 where as salary and other expenses amounted to ` 1,80,000 out of which ` 20,000 are outstanding.
- xi) The balance of the cash & bank as on 1st April 2013 was ` 85000.

8. The following are the Balance Sheets of GOYAL enterprises

	Jan.1	Dec.31
Assets		
Cash and Bank	5,000	8,000
Account Receivables	35,000	38,000
Inventories	25,000	22,000
Land	20,000	30,000
Business Premises	50,000	5,50,000
Machinery less Dep.	80,000	87,000
Delivery van		25,000
Total Assets	<u>2,15,000</u>	<u>2,65,000</u>
Liabilities:		
Current Liabilities	35,000	40,000
Loan from Banks	30,000	25,000



Mrs. Goyal's Loan		20,000
Capital	1,00,000	1,60,000
Hire Purchase vendor		20,000
Total Liabilities	2,15,000	2,65,000

Additional Information

The delivery van was purchased on hire purchase basis on Dec.2013, Payment of 5,000 was made at the time of agreement and the balance of amount is to be paid in 20 monthly installments of ` 1,000 each together with interest @10% per annum. During the year the proprietor withdraw ` 25,000 for household expenses. The provision for depreciation on machinery on 1/1/2017 was ` 27,000 and on 31/12/17 was ` 35,000. You are required to prepare the cash flow statement.

10.14 ANSWERS TO CHECK YOUR PROGRESS

1. True
2. False
3. False
4. False
5. True

10.15 REFERENCES/SUGGESTED READINGS

1. Horngren & Sundem, Introduction to Management Accounting, Prentice Hall of India, N.Delhi.
2. Anthony R.N. and Reece J.S., Management Accounting Principles, Homewood, Illinois, Richard D.Irwin.
3. Hansen & Mowen, Management Accounting, Thomson Learning, Bombay.
4. Anthony Robert and Hawkins David, Accounting: Text & Cases, McGraw Hill.



SUBJECT: ACCOUNTING FOR MANAGERS	
COURSE CODE: MBA-104	AUTHOR: Dr. B. S. BODLA
LESSON: 11	VETTER: DR. KARAM PAL

RATIO ANALYSIS

STRUCTURE

11.0 Learning Objective

11.1 Introduction To Financial Analysis

11.2 Use Of Financial Ratio

11.3 Advantages Of Ratio Analysis

11.4 Limitations Of Ratio Analysis

11.5 Precaution In Using Ratio Analysis

11.6 Types Of Ratios

11.6.1 Liquidity Ratios

11.6.2 Debt (Or Leverage Ratio)

11.6.3 Coverage Ratio

11.6.4 Profitability Ratio

11.6.5 Market Value Ratio

11.7 Check Your Progress

11.8 Summary

11.9 Keywords

11.10 Self-Assessment Test

11.11 Answer To Check Your Progress

11.12 References/Suggested Readings



11.0 LEARNING OBJECTIVE

After going through this lesson, you will be able to:

- (a) Explain the uses of financial ratios.
- (b) List out the precautions in making use of ratio analysis.
- (c) Explain the various types of ratios

11.1 INTRODUCTION

To evaluate the financial performance of a company, the financial ratios are used as a very sophisticated tool. But, the type of analysis varies according to the specific interests of the party involved. Trade creditors are interested primarily in the liquidity of a firm. Their claims are short term, and the ability of a firm to pay these claims is best judged by means of a thorough analysis of its liquidity. The claims of bondholders, on the other hand, are long term. Accordingly, they are more interested in the cash-flow ability of the company to service debt over the long run. The bondholder may evaluate this ability by analyzing the capital structure of the firm, the major sources and uses of funds, its profitability over time, and projections of future profitability.

Investors in a company's common stock are concerned principally with present and expected future earnings and the stability of these earnings. As a result, investors might concentrate their analysis on a company's profitability. They would be concerned with its financial condition insofar as it affects the ability of the company to pay dividends and to avoid bankruptcy. In order to bargain more effectively for outside funds, the management of a firm may be interested in all aspects of financial analysis that outside suppliers of capital use in evaluating the firm. Management also employs financial analysis for purposes of internal control. In particular, it is concerned with profitability on investment in the various assets of the company and in the efficiency of asset management.

11.2 USE OF FINANCIAL RATIOS

For analysing the financial condition and performance of a company, the financial analyst needs certain yardsticks. The yardstick frequently used is a ratio or index, relating two pieces of financial data to each other. Analysis and interpretation of various ratios should give experienced, skilled analysts a better



understanding of the financial condition and performance of the firm than they would obtain from analysis of the financial data alone.

The analysis of financial ratios involves two types of comparison. First, the analyst can compare a present ratio with past and expected future ratios for the same company. The current ratio (the ratio of current assets to current liabilities) for the present year could be compared with the current ratio for the preceding year. When financial ratios are arrayed on a spreadsheet over a period of years, the analyst can study the composition of change and determine whether there has been an improvement or deterioration in the financial condition and performance over time. The above is termed as *trend analysis*. Financial ratios also can be computed for future and can be compared with present and past ratios. In the comparison over time, it is best to compare not only financial ratios but also the few figures.

The second method of comparison involves comparing the ratios of one firm with those of similar firms or with industry averages at the same point in time. Such a comparison gives insight into the relative financial condition and performance of the firm. Sometimes a company will not fit neatly into an industry category. In such situations, one should try to develop a set, albeit usually small, of peer firms for comparison purposes.

11.3 ADVANTAGES OF RATIO ANALYSIS

1. Ratio analysis will help validate or disprove the financing, investment and operating decisions of the firm. They summarize the financial statement into comparative figures, thus helping the management to compare and evaluate the financial position of the firm and the results of their decisions.
2. It simplifies complex accounting statements and financial data into simple ratios of operating efficiency, financial efficiency, solvency, long-term positions etc.
3. Ratio analysis help identify problem areas and bring the attention of the management to such areas. Some of the information is lost in the complex accounting statements, and ratios will help pinpoint such problems.
4. Allows the company to conduct comparisons with other firms, industry standards, intra-firm comparisons etc. This will help the organization better understand its fiscal position in the economy.



11.4 LIMITATIONS OF RATIO ANALYSIS

1. The firm can make some year-end changes to their financial statements, to improve their ratios. Then the ratios end up being nothing but window dressing.
2. Ratios ignore the price level changes due to inflation. Many ratios are calculated using historical costs, and they overlook the changes in price level between the periods. This does not reflect the correct financial situation.
3. Accounting ratios completely ignore the qualitative aspects of the firm. They only take into consideration the monetary aspects (quantitative).
4. There are no standard definitions of the ratios. So firms may be using different formulas for the ratios. One such example is Current Ratio, where some firms take into consideration all current liabilities but others ignore bank overdrafts from current liabilities while calculating current ratio.
5. Information used in the analysis is based on real past results that are released by the company. Therefore, ratio analysis metrics do not necessarily represent future company performance.
6. finally, accounting ratios do not resolve any financial problems of the company. They are a means to the end, not the actual solution.

11.5 PRECAUTION IN USING RATIO ANALYSIS

The analyst should avoid using rules of thumb indiscriminately for all industries. For example, the criterion that all companies should have at least a 2-to-1 current ratio is inappropriate. The analysis must be in relation to the type of business in which the firm is engaged and to the firm itself. The true test of liquidity is whether a company has the ability to pay its bills on time. Many sound companies, including electric utilities, have this ability despite current ratios substantially below 2 to 1. It depends on the nature of the business. Only by comparing the financial ratios of one firm with those of similar firms can one make a realistic judgement.

Similarly, analysis of the deviation from the norm should be based on some knowledge of the distribution of ratios for the companies involved. If the company being studied has a current ratio of 1.4 and the industry norm is 1.8, one would like to know the proportion of companies whose ratios are below 1.4. If it is only 2 per cent, we are likely to be much more concerned than if it is 25 per cent.



Therefore, we need information on the dispersion of the distribution to judge the significance of the deviation of a financial ratio for a particular company from the industry norm.

Comparisons with the industry must be approached with caution. It may be that the financial condition and performance of the entire industry is less than satisfactory, and a company's being above average may not be sufficient. The company may have a number of problems on an absolute basis and should not take refuge in a favourable comparison with the industry. The industry ratios should not be treated as target asset and performance norms. Rather, they provide general guidelines. For benchmark purposes, a set of firms displaying 'best practices' should be developed.

In addition, the analyst should realize that the various companies within an industry grouping may not be homogeneous. Companies with multiple product lines often defy precise industry categorization. They may be placed in the most 'appropriate' industry grouping, but comparison with other companies in that industry may not be consistent. Also, companies in an industry may differ substantially in size.

Because reported financial data and the ratios computed from these data are numerical, there is a tendency to regard them as precise portrayals of a firm's true financial status. Accounting data such as depreciation, reserve for doubtful debts, and other reserves are estimates at best and may not reflect economic depreciation, bad debts, and other losses. To the extent possible, accounting data from different companies should be standardized.

11.6 TYPES OF RATIOS

Financial ratios can be grouped into five types: liquidity, debt, profitability, coverage, and market-value ratios. No one ratio gives us sufficient information by which we can judge the financial condition and performance of the firm. Only when we analyze a group of ratios we are able to make reasonable judgements. We must be sure to take into account any seasonal character of a business. Underlying trends may be assessed only through a comparison of raw figures and ratios at the same time of year. We would not compare a December 31 balance sheet with a May 31 balance sheet, but we would compare December 31 with December 31.

Although the number of financial ratios that might be computed increases geometrically with the amount of financial data, we concentrate only on the more important ratios in this lesson. Computing unneeded ratios adds both complexity and confusion to the problem. To illustrate the ratios discussed in this lesson, we use



the balance sheet and income statements of a Hypothetical Manufacturing Company shown in Tables 1 and 2.

Table 1: Hypothetical Manufacturing Company Balance Sheet

	March 31, 2015	March 31, 2014
	(₹)	(₹)
Assets		
Cash and short-term investments	177689	175042
Accounts receivable	678279	740705
Inventories	1328963	1234725
Prepaid expenses	20756	17197
Deferred income taxes	35203	29165
Current assets	<u>2240890</u>	<u>2196834</u>
Property, plant, and equipment	159686	1538495
Less: Accumulated depreciation	<u>856829</u>	<u>791205</u>
	<u>740057</u>	<u>747290</u>
Investment, long term	65376	-
Other assets	205157	205624
Total assets	<u><u>3251480</u></u>	<u><u>3149748</u></u>
Liabilities and shareholders' equity		
Bank loans and notes payable	448508	356511
Accounts payable	148427	136793
Income taxes payable	36203	127455
Accruals	<u>190938</u>	<u>164285</u>
Current liabilities	824076	785044
Long-term debt	630783	626460
Shareholders' equity		
Common stock (₹ 5 par value)	420828	420824
Additional paid-in capital	361158	361059
Retained earnings	1014635	956361
Total shareholders' equity	<u>1796621</u>	<u>1738244</u>



Total liabilities and equity

3251480

3149748

11.6.1 Liquidity ratios

Liquidity ratios are used to judge a firm's ability to meet short-term obligations. From them, much insight can be obtained into the present cash solvency of a company and its ability to remain solvent in the event of adversities. Essentially, we wish to compare short-term obligations with the short-term resources available to meet these obligations.

Table 2. Hypothetical Manufacturing Company Statement of Earnings

	Year ended March 31, 2015 (₹)	Year ended march 31, 2014 (₹)
Net sales	3992758	3721241
Cost of goods sold	2680298	2499965
Selling, general, and administrative expenses	801395	726959
Depreciation	111509	113989
Interest expense	85274	69764
Earnings before taxes	314282	310564
Provision for taxes	113040	112356
Earnings after taxes	201242	198208
Cash dividends	142968	130455
Retained earnings	58274	67753

Current ratio

One of the most general and most frequently used liquidity ratios is the current ratio:

$$\frac{\text{Current assets}}{\text{Current liabilities}} \quad (1)$$

For Hypothetical Manufacturing Co., the ratio for the 2015 year end is

$$\frac{\text{₹2240890}}{\text{₹824076}} = 2.72$$



The higher the current ratio, the greater the ability of the firm to pay its bills. The ratio must be regarded as a crude measure of liquidity, however, because it does not take into account the liquidity of the individual components of the current assets. A firm having current assets composed principally of cash and current receivables is generally regarded as more liquid than a firm whose current assets consist primarily of inventories. Consequently, we must turn to ‘finer’ tools of analysis if we are to evaluate critically the liquidity of the firm. It is noteworthy that liquidity has been defined as the ability to realize value in money, the most liquid of assets. Liquidity has two dimensions: (1) the time required converting the asset into money and (2) the certainty of the price realized. To the extent that the price realized on receivables is as predictable as that realized on inventories, receivables would be a more liquid asset than inventories, owing to the shorter time required to convert the asset into money. If the price realized on receivables is more certain than is that on inventories, receivables would be regarded as being even more liquid.

Quick ratio

A somewhat more accurate guide to liquidity is the quick, or acid-test, ratio:

$$\frac{\text{Current assets less inventories}}{\text{Current liabilities}} \quad (2)$$

For Hypothetical Co., this ratio is

$$\frac{\text{₹2240890} - \text{₹1328963}}{\text{₹824076}} = 1.11$$

This ratio is the same as the current ratio, except that it excludes inventories—presumably the least liquid portion of current assets—from the numerator. The ratio concentrates on cash, marketable securities, and receivables in relation to current obligations and thus provides a more penetrating measure of liquidity than does the current ratio.

Liquidity of receivables

Sometimes there are suspected imbalances or problems in various components of the current assets. In these situations, the financial analyst will want to examine these components separately in assessing liquidity. Receivables, for example, may be far from current. Regarding all receivables as liquid when in fact a sizable portion may be past due, overstates the liquidity of the firm being analyzed.



Receivables are liquid assets only insofar as they can be collected in a reasonable amount of time. For our analysis of receivables, we have two basic ratios, the first of which is the average collection period:

$$\frac{\text{Receivables} \times \text{Days in year}}{\text{Annual credit sales}} \quad (3)$$

If we assume for Hypothetical that all sales are credit sales, this ratio is

$$\frac{` 678279 \times 365}{` 3992758} = 62 \text{ days}$$

The average collection period tells us the average number of days receivables is outstanding, that is, the average time it takes to convert them into cash.

The second ratio is the receivable turnover ratio:

$$\frac{\text{Annual credit sales}}{\text{Receivables}} \quad (4)$$

For Hypothetical Co., this ratio is

$$\frac{` 3992758}{` 678279} = 5.89$$

These two ratios are reciprocals of each other. The number of days in the year, 365, divided by the average collection period, 62 days, gives the receivable turnover ratio, 5.89. The number of days in the year divided by the turnover ratio gives the average collection period. Thus, either of these two ratios can be employed.

Year-end versus average receivables- The receivable figure used in the calculation ordinarily represents year-end receivables. When sales are seasonal or have grown considerably over the year, using the year-end receivable balance may not be appropriate. With seasonality, an average of the monthly closing balances may be the most appropriate figure to use. With growth, the receivable balance at the end of the year will be deceptively high in relation to sales. The result is that the collection period calculated is a biased and high estimate of the time it will take for the receivable balance at year end to be collected. In this case, an average of receivables at the beginning and at the end of the year might be appropriate if the growth in sales were steady throughout the year. The idea is to relate the relevant receivable position to the relevant credit sales.



Interpreting the information- The average collection period ratio or the receivable turnover ratio indicates the slowness of receivables. Either ratio must be analyzed in relation to the billing terms given on the sales. If the average collection period is 45 days and the terms are 2/10, net 30¹ the comparison would indicate that a sizable proportion of the receivables is past due beyond the final due date of 30 days. On the other hand, if the terms are 2/10, net 60, the typical receivable is being collected before the final due date. Too low an average collection period may suggest an excessively restrictive credit policy. The receivables on the books may be of prime quality, yet sales may be curtailed unduly- and profits less than they might be- because of this policy. In this situation, credit standards for an acceptable account should be relaxed somewhat. On the other hand, too high an average collection period may indicate too liberal a credit policy. As a result, a large number of receivables may be uncollectible. Here, too, profits may be less than those possible, because of bad-debt losses and the need to finance a large investment in receivables. In this case, credit standards should be raised.

Aging of accounts- Another means by which we can obtain insight into the liquidity of receivables is through an aging of accounts. With this method, we categorize the receivables at a moment in time according to the proportions billed in previous months. We might have the following hypothetical aging of accounts receivable at December 31.

Month	December	November	October	September	August and before	Total
Proportion of						
Receivables billed	67%	19%	7%	2%	5%	100%

If the billing terms are 2/10, net 30, this aging tells us that 67 per cent of the receivables at December 31 are current, 19 per cent are up to 1 month past due, 7 per cent are 1 to 2 months past due, and so on. Depending on the conclusions drawn from our analysis of the aging, we may want to examine more closely the credit and collection policies of the company. In the example, we might be prompted to investigate the individual receivables that were billed in August and before, in order to determine if any should be charged off. The receivables shown on the books are only as good as the likelihood that they

¹ The notation means that the supplier gives a 2 per cent discount if the receivable invoice is paid within 10 days and that payment is due within 30 days if the discount is not taken.



will be collected. An aging of accounts receivables gives us considerably more information than the calculation of the average collection period because it pinpoints the trouble spots more specifically.

Duration of payables

From a creditor's standpoint, it would be desirable to obtain an aging of accounts payable. However, few customers are willing to provide such information, and many will resent being asked. Nonetheless, we often are able to compute the average age of a company's accounts payable. The average payable period is

$$\frac{\text{Accounts payable} \times 365}{\text{Purchases}} \quad (5)$$

where accounts payable is the average balance outstanding for the year and the denominator is external purchases during the year.

When information on purchases is not available, one can occasionally use the cost of goods sold in the denominator. A department store chain, for example, typically does no manufacturing. As a result, the cost of goods sold consists primarily of purchases. However, in situations where there is sizable value added, such as with a manufacturer, the use of the cost of goods sold is inappropriate. One must have the amount of purchases if the ratio is to be used. Another caveat has to do with growth. As with receivables, the use of a year-end payable balance will result in a biased and high estimate of the time it will take a company to make payment on its payables if there is strong underlying growth. In this situation, it may be better to use an average of payables at the beginning of the year and at the end.

The average payable period is valuable in evaluating the probability that a credit applicant will pay on time. If the average age of payables is 48 days, and the terms in the industry are net 30, we know that a portion of the applicant's payables are not being paid on time. A credit check of other suppliers will give insight into the severity of the problem.

Liquidity of inventories

We may compute the inventory turnover ratio as an indicator of the liquidity of inventory

$$\frac{\text{Cost of goods sold}}{\text{Average inventory}} \quad (6)$$

For Hypothetical, the ratio is

$$\frac{\text{` 2680298}}{\text{}} = 2.09$$



$$(\text{₹ } 1328963 + \text{₹ } 1234725)/2$$

The figure for cost of goods sold used in the numerator is for the period being studied- usually 1 year; the average inventory figure used in the denominator typically is an average of beginning and ending inventories for the period. The inventory turnover ratio tells us the rapidity with which the inventory is turned over into receivables through sales. This ratio, like other ratios, must be judged in relation to past and expected future ratios of the firm and in relation to ratios of similar firms, the industry average or both.

Generally, the higher the inventory turnover, the more efficient the inventory management of a firm. Sometimes a relatively high inventory turnover ratio may be the result of too low a level of inventory and frequent stockouts. It might also be the result of too many small orders for inventory replacement. Either of these situations may be more costly to the firm than carrying a larger investment in inventory and having a lower turnover ratio. Again, caution is necessary in interpreting the ratio. When the inventory turnover ratio is relatively low, it indicates slow-moving inventory or obsolescence of some of the stock. Obsolescence may necessitate substantial write-downs, which, in turn, would negate the treatment of inventory as a liquid asset. Because the turnover ratio is a somewhat crude measure, we would want to investigate any perceived inefficiency in inventory management. In this regard, it is helpful to compute the turnover of the major categories of inventory to see if there are imbalances, which may indicate excessive investment in specific components of the inventory. Once we have a hint of a problem, we must investigate it more specifically to determine its cause.

11.6.2. Debt (or leverage) ratios

Extending our analysis to the long-term liquidity of the firm (that is, its ability to meet long-term obligations), we may use several debt ratios. The debt-to-equity ratio is computed by simply dividing the total debt of the firm (including current liabilities) by its shareholders' equity:

$$\frac{\text{Total debt}}{\text{Shareholders' equity}} \quad (7)$$

For Hypothetical Co. the ratio is

$$\frac{\text{₹ } 1454859}{\text{₹ } 1796621} = 0.81$$



When intangible assets are significant, they frequently are deducted from shareholders' equity.

The ratio of debt to equity varies according to the nature of the business and the volatility of cash flows. An electric utility, with very stable cash flows, usually will have a higher debt ratio than will a machine tool company, whose cash flows are far less stable. A comparison of the debt ratio for a given company with those of similar firms gives us a general indication of the creditworthiness and financial risk of the firm.

In addition to the ratio of total debt to equity, we may compute the following ratio, which deals with only the long-term capitalization of the firm:

$$\frac{\text{Long-term debt}}{\text{Total capitalization}} \quad (8)$$

where total capitalization represents all long-term debt, preferred stock, and share-holders' equity. For Hypothetical Co. the ratio is

$$\frac{\text{₹ 630783}}{\text{₹ 2427404}} = 0.26$$

This measure tells us the relative importance of long-term debt in the capital structure. The ratios computed here have been based on book-value figures; it is sometimes useful to calculate these ratios using market values. In summary, debt ratios tell us the relative proportions of capital contribution by creditors and by owners.

Cash flow to debt and capitalization

A measure of the ability of a company to service its debt is the relationship of annual cash flow to the amount of debt outstanding. The cash flow of a company often is defined as the cash generated from the operation of the company. This is defined as earnings before interest, taxes and depreciation (EBITD). The cash-flow-to-total-liabilities ratio is simply:

$$\frac{\text{Cash flow (EBITD)}}{\text{Total liabilities}} \quad (9)$$

For Hypothetical Co., the ratio is

$$\frac{\text{₹ 511065}}{\text{₹ 1454859}} = 0.35$$



The cash flow is composed of earnings before taxes, ₹ 314282, plus interest, ₹ 85274, and depreciation, ₹ 111509. This ratio is useful in assessing the creditworthiness of a company seeking debt funds.

Another ratio is the cash-flow-to-long-term-debt ratio:

$$\frac{\text{Cash flow (EBITD)}}{\text{Long-term debt}} \quad (10)$$

Here we have the following for Hypothetical Co. Ltd.:

$$\frac{\text{₹ 511065}}{\text{₹ 630783}} = 0.81$$

This ratio is used to evaluate the bonds of a company. The two cash-flow ratios just described have proven useful in predicting the deteriorating financial health of a company.

This is particularly helpful in corporate restructuring, where heavily levered transactions occur. Another ratio often used in this regard is total interest-bearing debt plus equity in relation to operating cash flows. Known as the enterprise value-to-EBITD ratio, it can be expressed as

$$\frac{\text{Total borrowings + Equity}}{\text{Cash flow (EBITD)}} \quad (11)$$

For Hypothetical Co., this ratio is

$$\frac{\text{₹ 2875912}}{\text{₹ 511065}} = 5.63$$

where bank loans, notes payable, and long-term debt represent total borrowings. The higher this ratio, the greater the value that is being placed on the securities. Lenders in highly levered transactions become concerned when the ratio exceeds 8, as the possibility of default has been found to be significant at this point.

11.6.3 Coverage Ratios

Coverage ratios are designed to relate the financial charges of a firm to its ability to service them. Bond-rating services, such as CRISIL, ICRA, Moody and Standard and Poor's make extensive use of these ratios.



Interest coverage ratio

Interest coverage ratio is one of the most traditional of the coverage ratios. The ratio of earnings before interest and taxes for a particular reporting period to the amount of interest charges for the period is known as interest coverage ratio. We must differentiate which interest charges should be used in the denominator. The *overall coverage method* stresses a company's meeting all fixed interest, regardless of the seniority of the claim. We have the following financial data for a Hypothetical Company:

Average earnings before interest and taxes	₹ 2,000,000
Interest on senior 7% bonds	- 400,000
	₹ 1,600,000
Interest on junior 8% bonds	160,000

The overall interest coverage would be ₹ 2,000,000 / ₹ 560,000, or 3.57. This method implies that the creditworthiness of the senior bonds is only as good as the firm's ability to cover all interest charges.

Of the various coverage ratios, the most objectionable is the prior deductions method. Using this method, we deduct interest on the senior bonds from average earnings and then divide the residual by the interest on the junior bonds. We find that the coverage on the junior bonds in our example is 10 times (₹ 1,600,000 / ₹ 160,000). Thus, the junior bonds give the illusion of being more secure than the senior obligations. Clearly, this method is inappropriate. The cumulative deduction method, perhaps, is the most widely used method of computing interest coverage. Under this method, coverage for the senior bonds would be 5 times. Coverage for the junior bonds is determined by adding the interest charges on both bonds and relating the total to average earnings. Thus, the coverage for the junior bonds would be ₹ 2,000,000 / ₹ 560,000 = 3.57 times.

Cash-flow coverage ratios

This ratio involves the relation of earnings before interest, taxes, and depreciation (EBITD) to interest and to interest plus principal payments. For the cash-flow coverage of interest we have

$$\frac{\text{EBITD}}{\text{Annual interest payments}} \quad (12)$$

Cash flow is very useful in determining whether a borrower is going to be able to service interest payments on a loan. Even for highly levered transactions, lenders want a coverage ratio comfortably above 2.0. The EBITD interest coverage ratio is highly correlated with bond ratings and the market's



assessment of risk. To be investment grade, that is, AAA, AA, A, or BBB, the ratio for an industrial corporation usually must be above 4.0.

The limitations of an interest coverage ratio are that a firm's ability to service debt is related to both interest and principal payments. Moreover, these payments are not met out of earnings per se, but out of cash. Hence, a more appropriate coverage ratio relates the cash flow of the firm to the sum of interest and principal payments. The cash-flow coverage of interest and principal ratio may be expressed as-

$$\frac{\text{EBITD}}{\text{Interest} + \text{Principal payments} [1/(1 - t)]} \quad (13)$$

where t is the income tax rate and principal payments are annual. Because principal payments are made after taxes, it is necessary to gross them up so that they correspond to interest payments, which are made before taxes. If the tax rate were 40 per cent and annual principal payments ₹ 120,000, before-tax earnings of ₹ 200,000 would be needed to cover these payments. If the company has preferred stock outstanding, the stated dividend on this stock, grossed up by 1 minus the tax rate, should appear in the denominator of Equation 13.

For measuring the financial risk of a firm, the financial analyst should first compute the debt ratios as a rough measure of financial risk. Depending on the payment schedule of the debt and the average interest rate, debt ratios may or may not give an accurate picture of the ability of the firm to meet its financial obligations. Therefore, it is necessary to analyze additionally the cash-flow ability of the company to service debt. This is done by relating cash flow not only to the amount of debt outstanding but also to the amount of financial charges. Neither debt ratios nor coverage ratios are sufficient by themselves.

11.6.4 Profitability Ratios

There are two types of profitability ratios: (i) those showing profitability in relation to sales, and (ii) those showing profitability in relation to investment. Together these ratios indicate the firm's efficiency of operation.

Profitability in relation to sales

$$\text{Gross profit margin} = \frac{\text{Sales less cost of goods sold}}{\text{Sales}} \quad (14)$$

For Hypothetical Co. the gross profit margin is

$$\frac{1312460}{\text{Sales}}$$



$$\frac{\text{Gross Profit}}{\text{Sales}} = 32.9\%$$

Gross profit margin ratio tells us the profit of the firm relative to sales after we deduct the cost of producing the goods sold. It indicates the efficiency of operations as well as how products are priced. A more specific ratio of profitability is the net profit margin:

$$\frac{\text{Net profits after taxes}}{\text{Sales}} \quad (15)$$

For Hypothetical Co. this ratio is

$$\frac{201242}{3992758} = 5.04\%$$

This ratio tells us the relative efficiency of the firm after taking into account all expenses and income taxes, but not extraordinary charges.

Profitability in relation to investment

The group of profitability ratios relates profits to investments. One of these measures is the rate of return on equity, or the ROE:

$$\frac{\text{Net profits after taxes} - \text{Preferred stock dividend}}{\text{Shareholders' equity}}$$

For Hypothetical Co., the rate of return is

$$\frac{201242}{1796621} = 11.2\%$$

The rate of return on equity tells us the earning power on shareholders' book investment and is frequently used in comparing two or more firms in an industry. The figure for shareholders' equity used in the ratio may be expressed in terms of market value instead of book value. When we use market value, we obtain the earnings/price ratio of the stock.

A more general ratio used in the analysis of profitability is the return on assets, or the ROA:

$$\frac{\text{Net profits after taxes}}{\text{Total assets}} \quad (16)$$

For Hypothetical Co., the ratio is

$$\frac{201242}{\text{Total assets}}$$



$$\frac{\text{Net operating profit rate of return}}{\text{` 3251480}} = 6.19\%$$

ROA ratio is somewhat inappropriate, inasmuch as profits are taken after interest is paid to creditors. Because these creditors provide means by which part of the total assets are supported, there is a fallacy of omission. When financial charges are significant, it is preferable, for comparative purposes, to compute a net operating profit rate of return instead of a return on assets ratio. The net operating profit rate of return may be expressed as:

$$\frac{\text{Earnings before interest and taxes}}{\text{Total assets}} \quad (17)$$

Using this ratio, we are able to abstract from differing financial charges (interest and preferred stock dividends). Thus, the relationship studied is independent of the way the firm is financed.

Assets turnover ratio

Generally, the financial analyst relates total assets to sales to obtain the asset turnover ratio:

$$\frac{\text{Sales}}{\text{Total assets}} \quad (18)$$

Hypothetical Co. turnover for the 2005 fiscal year was

$$\frac{\text{` 3992758}}{\text{` 3251480}} = 1.23$$

Assets turnover ratio tells us the relative efficiency with which the firm utilizes its resources in order to generate output. It varies according to the type of company being studied. A food chain has a considerably higher turnover, for example, than does an electric utility. The turnover ratio is a function of the efficiency with which the various asset components are managed: receivables as depicted by the average collection period, inventories as portrayed by the inventory turnover ratio, and fixed assets as indicated by the plant or the sales to net fixed asset ratio.

Earning power

When we multiply the asset turnover of the firm by the net profit margin, we obtain the return on assets ratio or earning power on total assets:

$$\text{Earning power} = \frac{\text{Sales}}{\text{Total assets}} \times \frac{\text{Net profits after taxes}}{\text{Sales}} \quad (19)$$



$$= \frac{\text{Net profits after taxes}}{\text{Total assets}}$$

For Hypothetical Co., we have

$$\frac{\text{₹ 3992758}}{\text{₹ 3251480}} \times \frac{\text{₹ 201242}}{\text{₹ 3992758}} = 6.19\%$$

None of these two ratios (the net profit margin and the turnover ratio) by itself provides an adequate measure of operating efficiency. The net profit margin ignores the utilization of assets, whereas the turnover ratio ignores profitability on sales. The return on assets ratio or earning power, resolves these shortcomings. An improvement in the earning power of the firm will result if there is an increase in turnover, an increase in the net profit margin, or both. Two companies with different asset turnovers and net profit margins may have the same earning power. Firm A, with an asset turnover of 4 to 1 and a net profit margin of 3 per cent, has the same earning power – 12 per cent- as firm B, with an asset turnover of $1\frac{1}{2}$ to 1 and a net profit margin of 8 per cent.

Another way to look at the return on equity (ROE) is

$$\text{ROE} = \text{Earning power} \times \left(1 + \frac{\text{Debt}}{\text{Equity}} \right) \quad (20)$$

In this equation, earning power is grossed up by the equity multiplier associated with the use of debt. For Hypothetical Co.

$$\text{ROE} = 6.19\% \times 1.81 = 11.20\%.$$

With all the profitability ratios, comparing one company with similar companies is valuable. Only by comparison are we able to judge whether the profitability of a particular company is good or bad, and why. Absolute figures provide insight, but relative performance is most revealing.

11.6.5 Market-Value Ratios

We do find several widely used ratios that relate the market value of a company's stock to profitability, to dividends, and to book equity.

Price/earnings ratio

The price/earnings ratio of a company is simply

$$\text{P/E ratio} = \frac{\text{Share price}}{\text{Earnings per share}} \quad (21)$$



Here, earnings per share (EPS) usually are the trailing 12 months of earnings. However, security analysts sometimes use estimated EPS for the next 12 months. Suppose Hypothetical Manufacturing Company has a share price of ₹ 38. With a par value of ₹ 5 per share at 2005 fiscal year end in Table 1, there are 84165600 shares outstanding. Therefore, earnings per share are earnings after taxes divided by number of shares outstanding, or ₹ 201242000/84165600 = ₹ 2.39. The P/E ratio for Hypothetical Co. Is

$$\frac{\text{₹ 38.00}}{\text{₹ 2.39}} = 15.9 \text{ times}$$

In fact, the P/E ratio is considered as one measure of relative value. The higher this ratio, the more the value of the stock that is being ascribed to future earnings as opposed to present earnings. That is to say, likely future growth is what is being valued. During the last 20 years, the P/E ratio for Standard and Poor's 500 stock indexes has ranged from 8 to 28. The ratio reflects a number of things including interest rates, growth expectations for stocks in general.

Dividend Yield

The dividend yield for a stock relates the annual dividend to share price. Therefore,

$$\text{Dividend yield} = \frac{\text{Dividends per share}}{\text{Share price}} \quad (22)$$

Going to Tables 1 and 2, we determine that dividends per share for the 2015 fiscal year are ₹ 1.70.

Therefore, the dividend yield for Hypothetical Co. Is

$$\frac{\text{₹ 1.70}}{\text{₹ 38.00}} = 4.47\%$$

Noteworthy it is that companies with good growth potential retain a high proportion of earnings and have a low dividend yield, whereas companies in more mature industries pay out a high portion of their earnings and have a relatively high dividend yield. Hypothetical Co. falls in the latter category.

Market-to-Book Ratio

The final market-value ratio we consider relates market value per share to book value

$$\text{M/B ratio} = \frac{\text{Share price}}{\text{Book value per share}} \quad (23)$$



where M/B ratio is the market-to-book value ratio. Going again to Table 1, we divide shareholders' equity by the number of shares outstanding to get a book value per share of ₹ 21.35. Therefore, for Hypothetical Co., we have

$$\text{M/B ratio} = \frac{\text{₹ 3800}}{\text{₹ 21.35}} = 1.78$$

The market-to-book value ratio is a relative measure of how the growth option for a company is being valued vis-à-vis its physical assets. The greater the expected growth and value placed on such, the higher this ratio. M/B ratios for established companies range from as little as 0.5 to as high as 8.0. The former often is associated with a company that earns less than what the financial markets require, a harvest situation, and the latter with a company that earns substantially more through industry attractiveness and/or competitive advantage.

Illustrative problems

Problem 1 X Co. has made plans for the next year. It is estimated that the company will employ total assets of ₹ 8, 00,000; 50 per cent of the assets being financed by borrowed capital at an interest cost of 8 per cent per year. The direct costs for the year are estimated at ₹ 4, 80,000 and all other operating expenses are estimated at ₹ 80,000. The goods will be sold to customers at 150 per cent of the direct costs. Tax rate is assumed to be 50 per cent.

You are required to calculate: (i) net profit margin; (ii) return on assets; (iii) assets turnover and (iv) return on owners' equity.

Solution

The net profit is calculated as follows:

Sales (150% of ₹ 4, 80,000)		7, 20,000
Direct costs		4, 80,000
Gross profit		240000
Operating expenses	80,000	
Interest charges (8% of ₹ 4, 00,000)	32,000	1, 12,000
Profit before taxes		1, 28,000
Taxes (@ 50%)		64,000



Net profit after taxes

64,000

$$(i) \quad \text{Net profit margin} = \frac{\text{Profit after taxes}}{\text{Sales}} = 64000/720000 = 0.089 \text{ or } 8.9\%$$

$$(ii) \quad \text{Return on assets} = \frac{\text{EBIT} (1 - T)}{\text{Assets}} = \frac{160000 (1 - 0.5)}{800000} = 0.10 \text{ or } 10\%$$

$$(iii) \quad \text{Assets turnover} = \frac{\text{Sales}}{\text{Assets}} = 720000/800000 = 0.9 \text{ times}$$

$$(iv) \quad \text{Return on equity} = \frac{\text{Net profit after taxes}}{\text{Owners' equity}} = 64000/50\% \text{ of } 800000 = 0.16 \text{ or } 16\%$$

Problem 2 The total sales (all credit) of a firm are ` 6, 40,000. It has a gross profit margin of 15 per cent and a current ratio of 2.5. The firm's current liabilities are ` 96,000; inventories ` 48,000 and cash ` 16,000. (a) Determine the average inventory to be carried by the firm, if an inventory turnover of 5 times is expected? (Assume a 360-day year), (b) Determine the average collection period if the opening balance of debtors is intended to be of ` 80,000? (Assume a 360-day year).

Solution

$$(a) \text{ Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Average inventory}}$$

Since gross profit margin is 15 per cent, the cost of goods sold should be 85 per cent of the sales.

Thus, Cost of goods sold = $0.85 \times \text{` 640000} = \text{` 544000}$.

$$= \frac{\text{` 544000}}{\text{Av. Inventory}} = 5$$

$$\text{Average inventory} = \frac{\text{` 544000}}{5} = \text{` 1,08,800}$$

$$(b) \text{ Average collection period: } \frac{\text{Average debtors}}{\text{Credit sales}} \times 360$$

Average debtors = (op. debtors + cl. Debtors)/2

Closing balance of debtors is found as follows:

$$\text{Current assets (2.5 of current liabilities)} \quad \text{` 2, 40,000}$$



Less: Inventories	₹ 48,000	
Cash	16,000	64,000
∴ Debtors		<u>₹ 1, 76,000</u>
Average debtors = $(₹ 1, 76,000 + ₹ 80,000)/2 = ₹ 1, 28,000$		
	₹ 128000	
Average collection period = $\frac{₹ 128000}{₹ 640000} \times 360 = 72 \text{ days}$		

Problem 3. The following figures relate to the trading activities of Hind Traders Limited for the year ended 30th June, 2016:

Hind Traders Limited _____

Sales	15,00,000	Administrative expenses	
Purchases	9,66,750	Salaries	81,000
Opening stock	2,28,750	Rent	8,100
Closing stock	2,95,500	Stationery, postage, etc.	7,500
		Depreciation	27,900
Selling and distribution expenses	60,000	Other charges	49,500
Salaries	45,900	Provision for taxation	1,20,000
Advertising	14,100	Non-operating income	
Travelling	6,000	Dividend on shares	27,000
Non-operating expenses		Profit on sale of shares	9,000
Loss on sale of assets	12,000		

You are required to (1) rearrange the above figures in a form suitable for analysis, and (2) show separately the following ratios: (i) gross profit ratio; (ii) operating ratio; (iii) stock turnover ratio.

Solution

Hind Traders Ltd. _____

Profit and Loss Statement



Sales (less returns)		15, 00,000
Less: Cost of goods sold:		
Opening stock	2, 28,750	
Purchases	9, 66,750	
	<u>11, 95,500</u>	
Less: Closing stock	2, 95,500	9, 00,000
Gross profit		<u>6, 00,000</u>
Operating expenses		
Selling and distribution expenses	66,000	
Administrative expenses	1, 74,000	2, 40,000
Operating net profit	<u></u>	<u>3, 60,000</u>
Non-operating income	36,000	
Non-operating expenses	12,000	24,000
Profit before tax	<u></u>	<u>3, 84,000</u>
Provision for taxes		1, 20,000
		<u>2, 64,000</u>
	600,000	

(a) Gross profit ratio = $\frac{600,000}{1,500,000} = 0.40$ or 40%

(b) Operating ratio = $\frac{\text{Cost of goods} + \text{Operating expenses}}{\text{Sales}} = \frac{1,140,000}{1,500,000} = 0.76$ or 76%

(c) Stock turnover ratio = $\frac{\text{Cost of goods sold}}{\text{Average stock}} = \frac{9,000,000}{2,621,250} = 3.43$ times

Problem 4 Towards the end of 2014 the directors of Wholesale Merchants Ltd. decided to expand their business. The annual accounts of the company for 2014 and 2015 may be summarised as follows:

Wholesale Merchants Ltd

Financial statements		()
	Year	Year
	2014	2015
Sales:		



Cash	42,000	44,800		
Credit	3,78,000	4,78,800		
		4,20,000		5,23,600
Cost of sales		3,30,400		4,17,200
Gross margin		89,600		1,06,400
Expenses:				
Warehousing		18,200		19,600
Transport		8,400		14,000
Administration		26,600		26,600
Selling		15,400		19,600
Debenture interest		-		2,800
		68,600		82,600
Net profit		<u>21,000</u>		<u>23,800</u>
Fixed assets (<i>Less: depreciation</i>)		42,000		56,000
Current assets				
Stock	84,000		1,31,600	
Debtors	70,000		1,14,800	
Cash	14,000	1,68,000	9,800	2,56,200
<i>Less: Current liabilities</i>		70,000		1,06,400
Net current assets		98,000		1,49,800
Net assets		1,40,000		2,05,800
Share capital		1,05,000		1,05,000
Reserves and undistributed profit		35,000		58,000
Debenture loan		-		42,000
Capital employed		1,40,000		2,05,800

You are informed that: (a) All sales were from stocks in the company's warehouse. (b) The range of merchandise was not changed and buying prices remained steady throughout the two years. (c) The debenture loan was received on 1st January 2014, and additional fixed assets were purchased on that date.



You are required to state the internal accounting ratios that you would use in this type of business to assist the management of the company in measuring the efficiency of its operation, including its use of capital.

Your answer should name the ratios and give the figures (calculated to one decimal place) for 2014 and 2015, together with possible reasons for changes in the ratios for the two years. Ratios relating to capital employed should be based on the capital at the end. Ignore taxation.

Solution The following ratios are calculated for Wholesale Merchants Ltd.:

Ratios for wholesale merchant ltd. _____

Ratios		Year		Year	
		2014		2015	
1. Net margin: EBIT/Sales	21,000/4,20,000	5.0%	26,600/5,23,600	5.1%	
2. Sales to capital employed	4,20,000/1,40,000	3.0 times	5,23,600/2,05,800	2.5 times	
3. Return on capital employed: EBIT/CE	21,000/1,40,000	15.0%	26,600/2,05,800	12.9%	
4. Gross margin: gross profit/sales	89,600/4,20,000	21.3%	1,06,400/5,23,600	20.3%	
5. Expenses (excluding interest) to sales	68,600/4,20,000	16.3%	79,800/5,23,600	15.2%	
6. Stock turnover: CGS/Stock	3,30,400/84,000	3.9 times	4,17,200/1,31,600	3.2 times	
7. Debtors turnover: credit sales/debtors	3,78,000/70,000	5.4 times	4,78,800/1,14,800	4.2 times	
8. Current ratio: CA/CL	1,68,000/70,000	2.4 times	2,56,200/1,06,400	2.4 times	
9. Quick ratio: CA-Stock/CL	84,000/70,000	1.2 times	1,24,600/1,06,400	1.2 times	
10. Long-term debt-equity		0	42,000/1,63,800	0.3	

Note: EBIT for 2014 and 2015 respectively is: ` 21,000 + 0 = ` 21,000 and ` 23,800 + 2,800 = ` 26,600.



Comments. The return on capital employed has fallen from 15% in 2014 to 12.9% in 2015. The reason lies in the sales to capital ratio which has also fallen in 2015. The increase in capital employed has not been profitably utilised. The increased capital seems to have been blocked in stock and debtors.

It will be noticed that the gross margin ratio decreased from 21.3% in 2014 to 20.3% in 2015. This may be attributed to reduced selling price or granting of trade discounts on bulk orders. The operating ratio (expense to sales ratio) has fallen in 2014 by 1% and this had a slight impact on net profit ratio which has increased by 0.1%.

The short-term solvency of the company, reflected by current ratio and quick ratio, is more or less constant. However, there has been deterioration in the stock turnover and debtors turnover ratios. This implies the company is holding stocks for longer periods and allowing longer credit periods to customers.

There is no threat to the long-term solvency of the company. It did not use any long-term debt in 2014. A debenture loan of ₹ 42,000 is taken in 2015 and is about 0.26 of the equity funds. By a normal criterion, the company could have a debt equity ratio of 2: 1.

11.7 CHECK YOUR PROGRESS

There are some activities to check your progress. Answer the following:

1. Gross Profit margin Ratio indicates the efficiency of as well as how products are priced.
2. The formula to calculate Price Earning Ratio is share price divided by
3. The greater the expected growth and value placed, the higher will be ratio.
4. The claims of the bondholders in a company are short-term.....
5. Debt to equity ratio varies according to the nature of business and the volatility of cash flows.....

11.8 SUMMARY

Financial ratios can be derived from the balance sheet and the income statement. They are categorized into five types: liquidity, debt, coverage, profitability, and market value. Each type has a special use for the financial or security analyst. The usefulness of the 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.

A comparison of ratios of the same firm over time uncovers leading clues in evaluating changes and trends in the firm's financial condition and profitability. The comparison may be historical and predictive. It may include an analysis of the future based on projected financial statements. Ratios may



also be judged in comparison with those of similar firms in the same line of business and, when appropriate, with an industry average. From empirical testing in recent years, it appears that financial ratios can be used successfully to predict certain events, bankruptcy in particular. With this testing, financial ratio analysis has become more scientific and objective than ever before, and we can look to further progress in this regard.

11.9 KEYWORDS

Financial Ratio: It is a tool to evaluate the financial performance of a company.

Liquidity Ratio: It is used to judge the firm's ability to meet short-term obligations.

Coverage Ratios: These are designed to relate the financial charges of a firm to its ability to service them.

Return to Equity: It is the earning power on shareholders' book investment

11.10 SELF-ASSESSMENT TEST

1. Explain the need for the financial analysis. How does the use of ratios help in financial analysis?
2. Is it possible for a firm to have a high current ratio and still find difficulties in paying its current debt? Explain with illustration.
3. What are the leverage or capital-structure ratios? Explain the significance and limitations of the debt-equity ratio as a measure of the firm's solvency?
4. Why is it necessary to calculate the profitability ratios in relation to sales? Illustrate your answer.
5. Explain the calculation and significance of the various measures of rate of return on investment.
6. Explain the ratios which you, as an analyst, will focus your attention to in the following cases:
 - (i) A bank is approached by a company for a loan of Rs. 50 lakh for working-capital purposes.
 - (ii) A company requests a financial institution to grant a 10-year loan of ` 5 crore.
7. Which of the financial ratios of a company would you most likely refer to in each of the following situations? Give reasons.
 - (i) The company asks you to sell material on credit.
 - (ii) You are thinking of investing ` 25,000 in the company's debentures.
 - (iii) You are thinking of investing ` 25,000 in the company's shares.
8. "A higher rate of return on capital employed implies that the firm is managed efficiently." Is this true in every situation? What or why not?



9. Ratios are generally calculated from historical data. Of what use are they in assessing the firm's future financial condition?
10. A firm's sales are ₹ 4, 50,000, cost of goods sold is ₹ 2, 40,000 and inventory is ₹ 90,000. What is its turnover? Also, calculate the firm's gross margin.
11. The only current assets possessed by a firm are: cash ₹ 1, 05,000, inventories ₹ 5, 60,000 and debtors ₹ 4, 20,000. If the current ratio for the firm is 2-to-1, determine its current liabilities. Also, calculate the firm's quick ratio.
12. High-Low Plumbing Company sells plumbing fixtures on terms of 2/10 net 30. Its financial statements over the last 3 years follow:

	Amount (₹)		
	2013	2014	2015
Cash	30,000	20,000	5,000
Accounts receivable	200,000	260,000	290,000
Inventory	400,000	480,000	600,000
Net fixed assets	800,000	800,000	800,000
	1,430,000	1,560,000	1,695,000
Accounts payable	230,000	300,000	380,000
Accruals	200,000	210,000	225,000
Bank loan, short term	100,000	100,000	140,000
Long-term debt	300,000	300,000	300,000
Common stock	100,000	100,000	100,000
Retained earnings	500,000	550,000	550,000
	1,430,000	1,560,000	1,695,500
Sales	4,000,000	4,300,000	3,800,000
Cost of goods sold	3,200,000	3,600,000	3,300,000
Net profit	300,000	200,000	100,000

Using the ratios taken up in the chapter, analyze the company's financial condition and performance over the last 3 years. Are there any problems?

13. Assume that a firm has owners' equity of ₹ 1, 00,000. The ratios for the firm are:

Current debt to total debt	0.40
----------------------------	------



Total debt to owners' equity	0.60
Fixed assets to owners' equity	0.60
Total assets turnover	2 times
Inventory turnover	8 times

Complete the following balance sheet, given the information above.

Liabilities		Assets	
Current debt	.....	Cash	.....
Long-term debt	.....	Inventory	.....
Total debt	.....	Total current assets	.....
Owners' equity	.....	Fixed assets	.....
Total capital	.....	Total assets	.....

11.11 ANSWERS TO CHECK YOUR PROGRESS

1. Operations
2. Earning per share
3. Market to book value
4. False
5. True

11.12 REFERENCES/SUGGESTED READINGS

1. Jain and Khan: Management Accounting, TMH, Delhi.
2. Pandey, I.M.: Financial Management, Vikas Publishing House, Delhi.
3. Periasamy, P.: Financial, Cost and Management Accounting, HPH, Delhi.
4. Maheshwari, S.N.: Accounting for Management and Control, Sultan Chand and Sons, Delhi.
5. Van Horne: Financial Management and Analysis, Pearson Publication, Delhi.



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Course Code: MBA-104	Author: Surinder S. Kundu
Lesson: 12	Vetter: Prof. H. L. Verma

MARGINAL COSTING

STRUCTURE

- 12.0 Learning Objectives
- 12.1 Introduction
- 12.2 CVP Assumptions and Uses
- 12.3 Break-Even Point and Margin of Safety
- 12.4 Graphical Representation of CVP Relationship
- 12.5 Check Your Progress
- 12.6 Summary
- 12.7 Keywords
- 12.8 Self-Assessment Test
- 12.9 Answers to Check Your Progress
- 12.10 References/Suggested Readings

12.0 LEARNING OBJECTIVE

This lesson will make you familiar with:

- Meaning of CVP Analysis and uses of CVP Analysis.
- Concept of break-even point, Contribution, Margin of Safety.
- Graphical representation of CVP Relationship.

12.1 INTRODUCTION

It is important for managers to ascertain the cost behavior pattern and use it to estimate the total cost, total revenues and thereby profits at various sales volumes. The cost revenue relationship holds for a short period. Therefore, this relationship cannot be used to estimate long-term performance of the firm. However, this short-term validity helps to maximise profit with given resources. For the purpose of taking tactical decisions, managers use the marginal costing techniques because these short-term



decisions influence fixed costs. To understand the use of Marginal costing techniques, we have to study Cost-volume-profit (CVP) analysis. The Cost-volume-profit (CVP) analysis is the study of the effects on future profit of changes in fixed cost, variable cost, sales price, quantity and mix. The aim of CVP analysis is to estimate the total cost, total revenue and thereby profit of various sales volumes. Managers use this technique extensively to determine the break-even point and margin of safety. Break-even point is the level of activity at which there is neither profit nor loss. Margin of safety ratio indicates the percentage by which forecast turnover exceeds or falls short of breakeven turnover. The CVP analysis assumes that output is the only cost and revenue driver.

12.2 CVP ASSUMPTIONS AND USES

The assumptions of the CVP analysis are:

- (a) Fixed and variable cost patterns can be established with reasonable accuracy,
- (b) Total fixed costs and variable cost per unit will not change during the period under consideration,
- (c) Selling price will remain constant at all sales volumes,
- (d) Factor price per unit (e.g. material prices, wage rates) will remain constant at all sales volumes,
- (e) Efficiency and productivity will remain unchanged during the period under consideration,
- (f) In a multi-product situation, sales-mix will remain unchanged during the period,
- (g) Output is the only relevant factor affecting costs and revenue, and
- (h) The volume of production will be equal to the volume of sales that is accretion decoration to inventory level will be insignificant during the period.

The uses of CVP analysis are:

- (a) To determine the 'Break-even point' in terms of sales volume or sales value,
- (b) To ascertain the Margin of safety ratio,
- (c) To estimate profits or losses at various activity levels,
- (d) To assess the likely effect of management decisions such as an increase or a reduction in selling price, adoption of a new method of production which will reduce fixed costs and increase variable costs on the profitability of the firm, and
- (e) To determine the optimum selling price.

12.3 BREAK-EVEN POINT AND MARGIN OF SAFETY

Break-even point is the sales volume or sales value at which the firm neither makes profit nor incurs



loss. In other words, at the break-even point, revenue equals total costs.

12.3.1 Marginal Cost Equation

Revenue - Variable costs - Fixed costs = Operating income

Or $S - V - F = P$

Or $S - V = F + P = C$

Where S = revenue,

V = total variable cost,

C = total contribution

F = total fixed cost

12.3.2 Contribution/Sales Ratio (C/S Ratio)

$C/S \text{ Ratio} = \text{Total contribution} / \text{Total turnover} \times 100$

Or $(S - V) / S \times 100$ or $(F + P) / S \times 100$

The C/S ratio represents the percentage of sales, which contributes towards fixed costs and operating profit. CVP analysis assumes that C/S ratio does not change with changes in output or sales volumes. It is also termed as Profit Volume ratio or PV ratio.

12.3.3 Break-even Sales

In determining break-even sales, we need to know

(a) Fixed costs and (b) Contribution per unit or the C/S ratio.

At break-even point (BEP), total contribution equals fixed costs. Therefore, BEP in terms of unit is calculated by dividing total fixed costs by contribution per unit. BEP in terms of sales value is calculated by dividing total fixed costs by the C/S ratio.

Example 12.1: The following information is available from the annual budget of a company manufacturing only one item.

Budgeted output and sales		5000 units
Budgeted selling price per unit		₹ 40
Budgeted cost per unit:		
Material	₹ 15	
Direct labour	₹ 5	
Variable overhead	₹ 10	
Fixed cost per unit	₹ 5	(35)



Budgeted profit per unit

₹ 5

Calculate the break-even point both in terms of the number of units and sales value.

Solution:

Contribution per unit of the given product is as follows:

Selling price ₹ 40; Variable cost: Material ₹15; Direct labour ₹5; Variable overhead ₹10 and Contribution margin per unit ₹10. Fixed cost per unit, included in the total cost per unit, is the average fixed cost per unit, calculated on the basis of budgeted fixed cost (total) and budgeted output. Therefore, budgeted fixed cost (total) = ₹ 5 x 5,000 = ₹ 25,000.

The two factors (e.g. fixed costs and contribution margin per unit) are now known to us, and, therefore, we can calculate the BEP

$$\begin{aligned}\text{BEP} &= \text{Fixed Cost/Contribution per unit} \\ &= 25000/10 = 2500 \text{ units.}\end{aligned}$$

At BEP, total contribution (2,500 x ₹ 10), that is, ₹ 25,000 is equal to fixed costs.

$$\begin{aligned}\text{C/S ratio} &= \text{C per unit/ Selling price per unit} \\ &= 10/40 \times 100 = 25\%.\end{aligned}$$

$$\begin{aligned}\text{BEP} &= \text{Fixed cost/ C/S ratio} \\ &= 25000/25\% = ₹ 1,00,000.\end{aligned}$$

12.3.4 Margin of Safety

Margin of safety is the difference between the estimated sales and sales at BEP. It provides very useful information to management, i.e. by how much can sales drop below the budgeted sales before a loss is incurred. Margin of safety is usually expressed as a percentage of budgeted sales.

In the example 9.1, margin of safety is (5,000 - 2,500) units or 2,500 units that is 50% of the budgeted sales.

12.3.5 C/S Ratio and Break-even Point in a Multi-Product Situation

In a multi-product situation, it is not possible to express the break-even point in terms of units. It is quite likely that different measuring units are used to measure sales quantity of different products. Even if a single unit is used, products may not be comparable and contribution per unit would be different. Therefore, under a multi-product situation, BEP is calculated in terms of sale value by using weighted average C/S ratio. Weight of each product in the sales-mix is used to calculate the weighted average C/S ratio. The underlying assumption is that the same percentage movement in sales of all the products in



the product-mix accompanies a percentage movement in total sales.

Break-even point is calculated with the following assumptions:

- (a) Constant C/S ratio for each product;
- (b) Constant sales-mix; and
- (c) Constant fixed cost.

The steps involved in calculating the break-even points are:

- (a) Calculate the C/S ratio for each product;
- (b) Calculate weighted average C/S ratio in relation to estimated proportion of sales; and
- (c) Use the weighted average C/S ratio to calculate break-even point in terms of sale-value.

Example 12.2: (A) SSK manufactures and sells four types of products under the brand names A, B, C and D. The sales-mix in value comprises $33\frac{1}{3}\%$, $41\frac{2}{3}\%$, $16\frac{2}{3}\%$ and $8\frac{1}{3}\%$ of A, B, C and D

respectively. The total budgeted sales (100%) are ₹ 60,000 per month. Operating costs are:

Variable costs: Product: A 60% of selling price; B 68% of selling price; C 80% of selling price; D 40% of selling price; and Fixed cost ₹ 14,700 per month. Calculate the break-even point for the products on an overall basis.

(B) It has been proposed to introduce a change in the sales mix as follows, the total sales per month remaining ₹ 60,000:

Product	A	25%
	B	40%
	C	30%
	D	5%

Assuming that the proposal is implemented, calculate the break-even point

Solution:

C/S ratio for each product

Product	Variable cost to sales ratio	C/S ratio (100- variable cost to sales ratio)
A	60%	40%
B	68%	32%
C	80%	20%
D	40%	60%



Weighted average C/S ratio:

Product		C/S ratio (Percentage)
A	$33\frac{1}{3} \times 40\%$	13.33
B.	$41\frac{2}{3} \times 32\%$	13.44
C	$16\frac{2}{3} \times 20\%$	3.33
D	$8\frac{1}{3} \times 60\%$	5.00

Weighted average c/s ratio

$$\text{BEP} = \frac{\text{Fixed costs}}{\text{C/S ratio}} = 14,700 / 35\% = 42,000 \text{ per month}$$

Weighted average C/S ratio with changed sales-mix, without any change in individual C/S ratio.

Weighted average C/S ratio:

Product		C/S ratio (Percentage)
A	25% x 40	10.00
B.	40% x 32	12.80
C	30% x 20	6.00
D	5% x 60	3.00

Weighted average c/s ratio

$$\text{BEP} = \frac{\text{Fixed costs}}{\text{C/S ratio}} = \frac{14,700}{31.80\%} = 46,226 \text{ per month}$$

Proof (Nor required in examination)

Product	Old sales-mix		New sales-mix	
	Sales(°)	Contribution(°)	Sales(°)	Contribution(°)
A	$60,000 \times 33\frac{1}{3}\%$	$20,000 \times 40\%$	$60,000 \times 25\%$	$15,000 \times 40\%$
	i.e. 20,000	i.e. 8,000	i.e. 15,000	i.e. 6,000
B	$60,000 \times 41\frac{2}{3}\%$	$25,000 \times 32\%$	$60,000 \times 40\%$	$24,000 \times 32\%$



	i.e. 25,000	i.e. 8,000	i.e. 24,000	i.e. 7,680
C	$60,000 \times 16\frac{2}{3}$	$10,000 \times 20\%$	$60,000 \times 30\%$	$18,000 \times 20\%$
	i.e. 10,000	i.e. 2,000	i.e. 18,000	i.e. 3,600
D	$60,000 \times 8\frac{1}{3}$	$5,000 \times 60\%$	$60,000 \times 5\%$	$3,000 \times 60\%$
	i.e. 5,000	i.e. 3,000	i.e. 3,000	i.e. 1,800
Total	₹ 60,000	₹ 21,000	₹ 60,000	₹ 19,080

Weighted average C/S ratio

$$\frac{21,000}{60,000} \times 100 \text{ i.e. } 35\%$$

Weighted average C/S ratio

$$\frac{19,080}{60,000} \times 100 \text{ i.e. } 31.80\%$$

12.4 GRAPHICAL REPRESENTATION OF CVP RELATIONSHIP

As an aid to management, CVP analysis is presented in graphical form. This graph is popularly known as the 'break-even chart'. Break-even chart can be drawn in many ways. The construction of break-even chart is exemplified in Graphs 12.1 to 12.5.

Example 12.3: You are given the following data for the coming year for a factory.

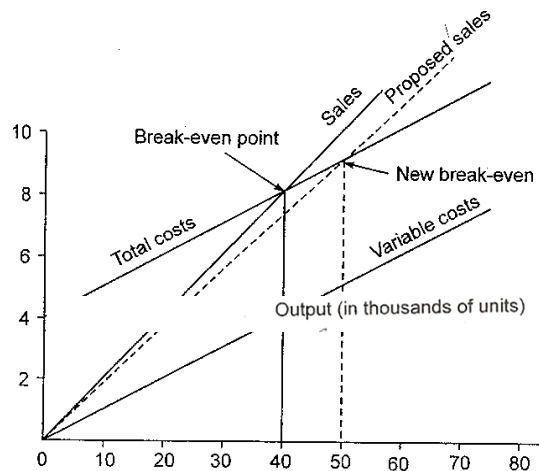
Budgeted output 80000 units; Fixed expenses ₹ 400000; Variable expenses per unit ₹ 10; Selling price per unit ₹ 20. Draw a break-even chart showing the break-even point. If the selling price be reduced to ₹ 18 per unit, what will be the new break-even point?

Solution:

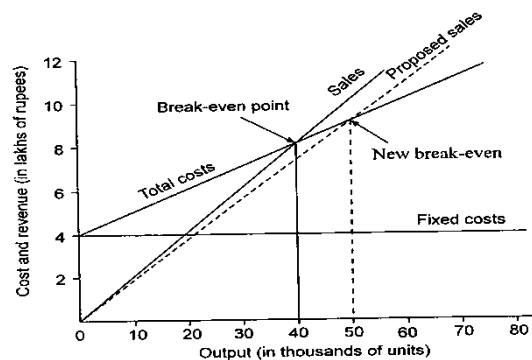
Detailed notes: (i) The horizontal axis shows the units of output; (ii) The vertical axis shows the cost and revenue in terms of value; (iii) The fixed cost line at ₹ 4, 00,000 is assumed to be same at all output levels; (iv) The revenue line (assuming the same selling price per unit at all output levels) starts at nil and progresses evenly; (v) The total cost line commences at the fixed cost of ₹ 4, 00,000 (fixed cost is incurred even at nil production) and increase by the addition of variable cost per unit as output increases; (vi) The break-even point is the point of intersection (which reads at 40,000 units on the graph) between total cost and revenue lines. This can be proved arithmetically. Contribution at 40,000



units is $40,000 \times (20 - 10)$, i.e. Rs. 4, 00,000 which is equal to the fixed cost; and (vii) Revised revenue (revised on account of reduction in selling price) shown by dotted line intersects total cost line at an output of 50,000 units. The new break-even point is 50,000 units.



Graph 12.1: Break-even Chart

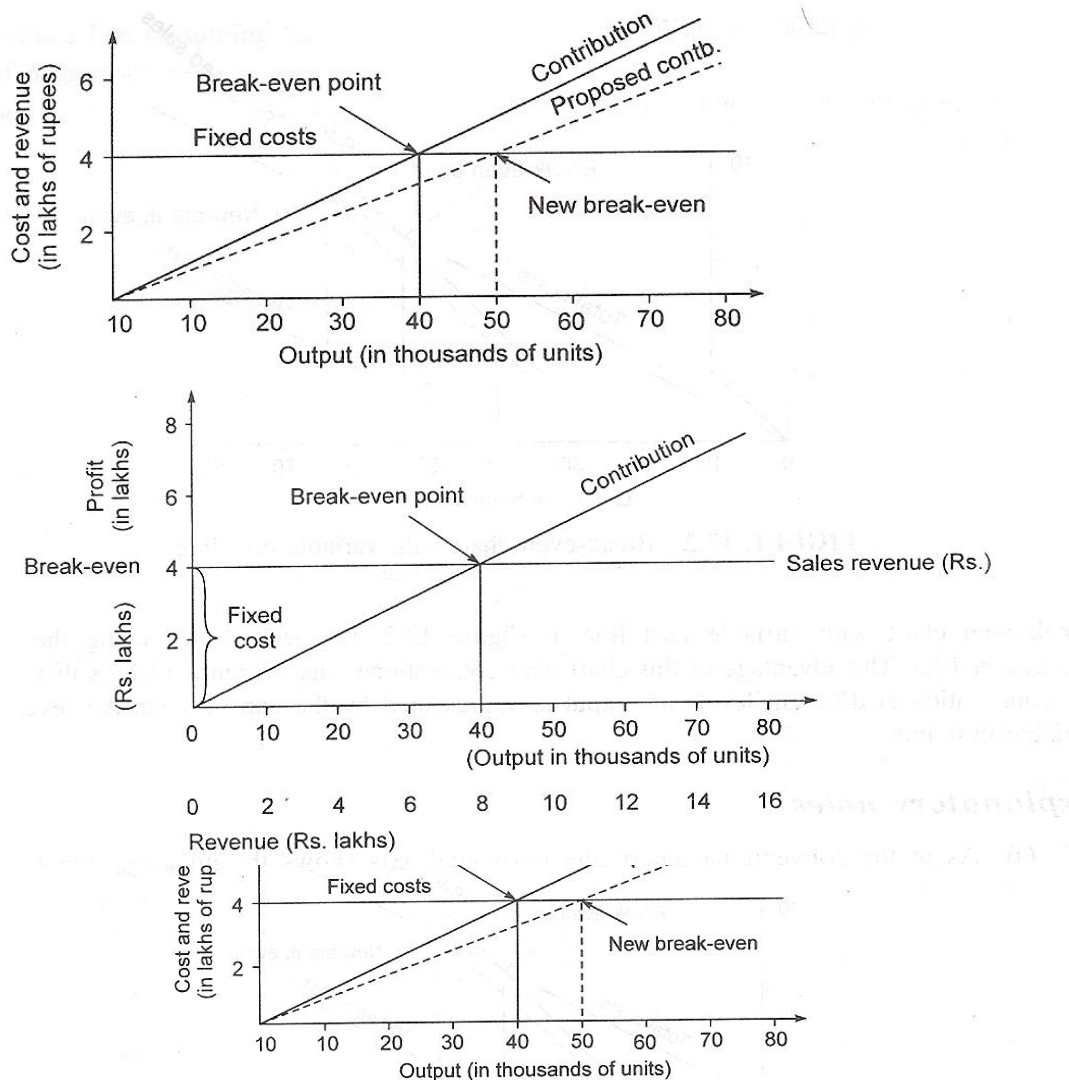


Graph 12.2: Break-even Chart with variable cost line

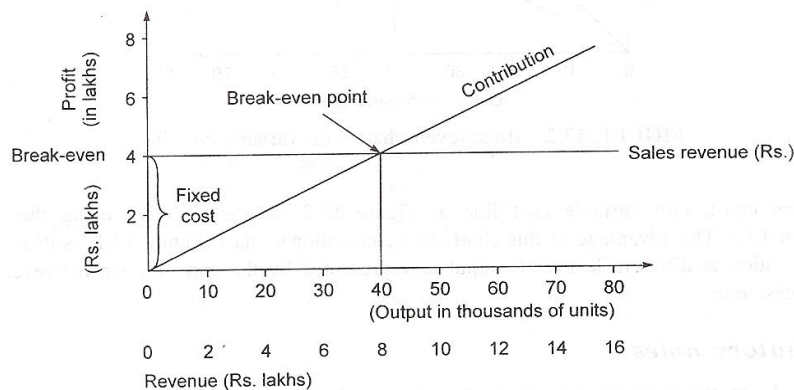
Detailed notes: (i) As in the conventional chart, the horizontal axis shows the units of output and the vertical axis shows the cost and the revenue; (ii) The variable cost line starts at nil and progresses evenly as the output increases. The conventional chart does not show the variable cost line; (iii) Total cost line is parallel to variable cost line; the gap between the two represents the fixed cost (₹ 4, 00,000); and (iv) Revenue line has been drawn in the same way as is drawn on conventional chart.



12.4.1 Volume contribution chart in Graph 12.3 is another way of presenting the break-even point. Information in Example 9.3 has been used to draw the chart. In this chart the contribution line starts at nil for nil output and progresses evenly with increase in output. Break-even point is the point of intersection between the contribution line and the fixed cost line. The advantage of this method is that several lines at various selling prices and variable costs may be drawn without the chart becoming too overburdened.



Graph 12.3: Volume contribution chart



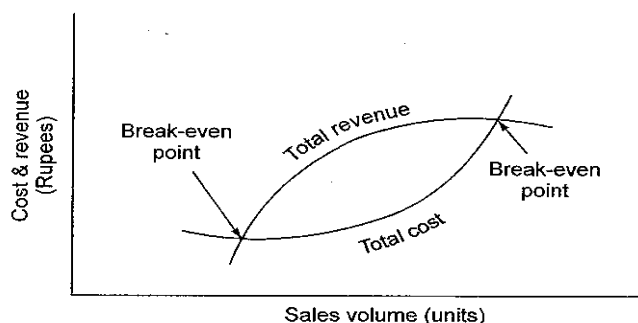
Graph 12.4: Volume contribution break-even chart.

Graph 12.4 shows another method of depicting the break-even point. The horizontal axis not only shows the sales volume in quantities, it shows the revenue (in rupee) too. The chart clearly shows the profit or loss area, which starts at ₹ 4,00,000 below the break-even line (because ₹ 4,00,000 being the fixed costs to be recovered to break-even). Contribution line starts at nil with nil output and progresses evenly with increase in sales. The point of intersection between the fixed cost line and the contribution line shows the break-even point.

The chart with reduction in selling price has to be drawn separately to avoid confusion. (It will be a good practice for the reader to draw the chart with a reduced selling price.) The fixed cost line and the revenue line will look the same as in Graph 9.4 except a change in the scale for revenue (₹) at the horizontal axis.

12.4.2 Limitation of break-even chart

In actual practice, Break-even charts are quite unlikely to resemble the chart shown above because underlying assumptions in CVP analysis do not hold good in real-life situations. The cost and revenue lines are not straight lines. They are rather curvilinear and the chart might show more than one break-even point. Such a break-even chart may look like the chart given in Graph 12.5.





Graph 12.5: Curvilinear break- even chart.

12.4.3 Angle of incidence

This is the angle at which the sales line cuts the total cost line (Graphs 12.1 and 12.2). If the angle is large, the firm (or product) is earning profit at a high rate. If used in conjunction with the margin of safety, it indicates an extremely favourable condition. A small angle of incidence shows that although the firm (or the product) is making profit, it is being achieved under less favorable conditions.

12.4.4 Multi-Product Profit Graph

When a firm manufactures and sells more than one product of varying profitability; a CVP chart may be drawn to show the relative profitability of different products. This graph is known as 'Sequential profit graph' or 'Profit path chart'. The following steps are involved in drawing the graph:

- (a) The C/S ratio is determined for different products and products are arranged in order of the descending C/S ratio, i.e. the product showing the highest C/S ratio is shown first and so on;
- (b) A statement is prepared showing the cumulative sales and the cumulative profit;
- (c) Sales are plotted on horizontal axis;
- (d) Fixed cost is plotted on vertical axis below the horizontal axis;
- (e) Starting from the fixed cost point a profit path is drawn which terminates at the profit point reached by the last product;
- (f) The end of the profit path is connected with the fixed cost point. This line is called the total profit line;
- (g) The point of intersection between the total profit line and the total sale line is called the break-even point for a group of products.

Example 12.4: A manufacturing company produces three products: P, Q and R. The following are the results for 2017.

Product	Sales (₹)	Variable cost (₹)
P	5000	2000
Q	3000	1800
R	2000	2500

Fixed Costs ₹ 2200

Prepare a marginal cost statement and calculate C/S ratio for the product. Draw a profit-graph of



products and comment on the results.

Solution:

Product	P (₹)	Q (₹)	R (₹)	Total (₹)
Sales	5,000	3,000	2,000	10,000
Variable cost	(2,000)	(1,800)	(2,500)	(6,300)
Contribution	3,000	1,200	(500)	3,700
C/S ratio	$\frac{3000}{5000} \times 100$ = 60%	$\frac{1200}{3000} \times 100$ = 40%	$\frac{500}{2000} \times 100$ = 25%	$\frac{3700}{10000} \times 100$ = 37%

Break-even point = Fixed cost/ C/S ratio = 2,200/37% = ₹ 5,946.

Data for graph

Products are arranged in order of descending C/S ratio.

Product	Sales (₹)	Cumulative sales (₹)	Contribution (₹)	Cumulative contribution (₹)	Fixed cost (₹)	Cumulative profit
P	5,000	5,000	3,000	3,000	2,200	800
Q	3,000	8,000	1,200	4,200	2,200	2,000
R	2,000	10,000	(500)	3,700	2,200	1,500

Product R's contribution is negative. Therefore, it should be discontinued, if possible. The production of P, which has the highest contribution, should be increased. However, non-cost factors should also be considered before taking the final decision.

12.4.5 Effects of Income Taxes

Generally, we know $S - V - F = P$ or operating income,

After income tax effects, it will

Net income = Operating income - [(Operating income) x (Tax-rate)]

Or Net income = (Operating income) x (1 - Tax rate)

Or Operating income = Net Income/ (1 - Tax rate)

Thus, Revenue - Variable costs - Fixed costs = Net Income/ (1 - Tax rate)

Example 12.5: Football Shoe Company produces different products-all of which has the same C/S ratio of 20%. The present sale is ₹ 60,000 per month and fixed cost is ₹ 80,000 per annum. The following



information is available from the budgeted forecasts for the coming year:

Volume of sales	No change
Increase in variable cost	5%
Estimated fixed cost	₹ 90,000

You are required to calculate: (a) The present yearly profit and (b) The percentage increase required in selling prices during the forthcoming budget year in order to maintain the existing level of profit.

Solution:

(a) The present yearly profit:

Sales for the current year	60,000 x 12	720000
Variable cost (80% of sales)	Contribution	(576000)
Fixed cost		144000
Present yearly profit		(80000)
		<u>64000</u>

(b) Percentage increase required in selling price:

Budgeted fixed cost	90000
Required profit	64000
Required contribution	154000
Variable cost (5, 76,000 + 5%)	604800
Required revenue	<u>758800</u>

$$\text{Increase in price: } \frac{(758800 - 720000) \times 100}{720000} = 5.39\% \text{ increase}$$

12.4.6 Break-even point and profit planning

Now, in the ensuing examples, we will explain the profit planning decisions.

Example 12.6: A company sells its product at ₹ 15 per unit. In a period, if it produces and sells 8000 units, it incurs a loss of ₹ 5 per unit; if the volume is raised to 20000 units, it earns a profit of ₹ 4 per units. Calculate break-even point both in terms of rupees as well as units.

Solution:



Suppose, the contribution margin is c and fixed cost of F ; therefore, contribution on sale of 8000 units is $8000c$.

Thus,

$$8000c = F - 8000 \times 5 \text{ or } 8000c = F - 40000 \quad (1)$$

Similarly, on sale of 20000 units, contribution is $20000c$

Thus,

$$20000c = F + 20000 \times 4 \text{ or } 20000c = F + 80000 \quad (2)$$

Deducting Eq. (1) from Eq. (2) we get:

$$12000c = 120000 \text{ or } c = 10$$

Substituting $c = 10$ in Eq. (1) we get $F = 120000$

Break-even point in units = $120000 / 10$ units = 12000 units,

Break-even point in rupees = 12000 units $\times 15 = 180000$.

Example 12.7: Indian Traders and Indian Corporation sell the same type of products in same type of market. Their budgeted profit and loss account for the ending 2017 are as follows:

	<u>Indian Traders</u>		<u>Indian Corporation</u>	
Sales		300000		300000
Variable cost	240000		200000	
Fixed costs	<u>30000</u>	(270000)	<u>70000</u>	(270000)
Net Profit		30000		30000

You are required to:

- Calculated the break-even points of each business;
- Calculated the sales-volume at which each of the business will earn ₹ 10000 profit; and state which business is likely to earn greater profit in condition of: Heavy demand for the product; and Low demand for the product. Give your reasons.

Solution:

- Break-even point



	Indian Traders (₹)	Indian Corporation (₹)
Sales	300000	300000
Variable cost	(240000)	(200000)
Contribution	60000	100000

C/S ratio = $60000 \times 100 / 300000 = 20\%$ $100000 \times 100 / 300000 = 33.33\%$

Break-even point $\frac{₹ 30000}{20\%} = ₹ 150000$ $\frac{₹ 70000}{33\%} = ₹ 21000$

(b) Total contribution required:

Fixed costs	30000	70000 Profit required
10000	10000	
	40000	80000
	$₹ 40000 / 20\%$	$₹ 80000 / 33.33\%$
	$= ₹ 200000$	$= ₹ 240000$

(c) Sales-volume at which both the firms would earn equal profit:

Let the sales volume be a

Profit of Indian Traders: $a \times 20\% - ₹ 30000 = 0.20a - 30000$

Profit for Indian Corporation: $a \times 33\frac{1}{3}\% - ₹ 70000$

The profit for both the firms being equal,

$$0.20a - a/3 - ₹ 30000 + ₹ 70000 = 0 \text{ or } a = ₹ 300000$$

The C/S ratio of Indian Corporation at 33.33% is higher than that of Indian Traders at 20%. Therefore, Indian Corporation will earn a higher profit if the sales volume exceeds ₹ 300000 level. However, below that level profit for Indian Traders will be higher. It may be concluded that Indian Corporation is likely to earn a higher profit under conditions of heavy demand for the product. Similarly, Indian Traders is likely to earn a higher profit under conditions of low demand for the product.



Example 12.8: Two manufacturing companies, which have the following operating details, decide to merge.

	Company 1	Company 2
Capacity utilization %	90	60
Sale (₹ Lakh)	540	300
Variable costs (₹ Lakh)	396	225
Fixed costs (₹ Lakh)	80	50

Assuming that proposal is implemented, calculate:

- Break-even sales of the merged plant and the capacity utilization at that stage
- Profitability of the merged plant at 80% capacity utilization
- Sales turnover of the merged plant to earn a profit of ₹ 75 lakh
- When the merged plant is working at a capacity to earn a profit of ₹ 75 lakh, what percentage increase in selling price is required to sustain as increase of 5 % in fixed overhead?

Solution: Operating data of the merged plant at 100% capacity:

	Company 1	Company 2	Total merged plant
Capacity	100%	100%	100%
	(₹ lakh)	(₹ lakh)	(₹ lakh)
Sales	$540 \div 0.90 = 600$	$300 \div 0.60 = 500$	1,100
Variable cost	$396 \div 0.90 = (440)$	$225 \div 0.60 = (375)$	(815)
Contribution	160	125	285
Fixed cost	(80)	(50)	(130)
Profit	80	75	155

- Break-even point of the merged plant:

C/S ratio: $\text{Contribution} \times 100 / \text{Sales} = 285 \times 100 / 1100 = 25.91\%$

Break-even point of the merged plant:



Fixed cost of the merged plant/ (c/s ratio) = $130/25.91\% = ₹ 501.74 \text{ lakh}$

Capacity utilization at break-even level:

= Sale value at break-even level/ Sale value at 100% capacity

= $₹ 501.74 \text{ lakh} \times 100/1100 = 45.6\%$

(b) Profitability of the merged plant at 80 % capacity utilization:

Sales at 80% capacity utilization = $₹ 1,100 \text{ lakh} \times 80\%$ ₹ 880 lakh

Contribution at 80% capacity = $₹ 880 \times 25.91\%$ ₹ 228 lakh

Fixed cost ₹ 130 lakh

Profit ₹ 98 Lakh

Profitability at 80% level $98 \times 100/880 = 11.14\%$

(c) Sales to earn profit of ₹ 75,000:

Required contribution: $(₹ 75,000 + ₹ 30,000) = ₹ 205 \text{ lakh}$

Sales turnover required: Required contribution = $₹ 205 \text{ lakh} = ₹ 781.20$

C/S ratio 25:91 %

(d) Required percentage increase in selling price to sustain 5% increase in relaxed cost:

Fixed cost at current level: ₹ 130 lakh

Increase in fixed cost 5% of ₹ 130 lakh ₹ 6.50 lakh

Hence, additional contribution required ₹ 6.50 lakh

Increase in selling price required = $6.5 \times 100/791.20 = 0.8215\%$

Example 12.9: X limited has been offered an order from A Ltd. for 10,000 units of output @ ₹ 100 each which has a variable cost of ₹ 60 and will involve an outlay of ₹ 60,000 to set-up jigs and dies. At the same time, there is another offer of B Ltd., for 8,000 units of output at ₹ 110 each. Variable costs are estimated at ₹ 68 each and involve an outlay of ₹ 50,000 to set-up jigs and dies. Which offer should the company accept?

Solution:

a) Contribution per units:

Price per unit	₹ 100	₹ 110
Variable cost per unit	(60)	(68)
Contribution per unit	<u>₹ 40</u>	<u>₹ 42</u>



b) Statement of profitability:	<u>A Ltd.</u>	<u>B Ltd.</u>
Output of units	10000	8000
Total contribution per unit	` 400000	` 336000
Net profit	<u>(60000)</u>	<u>(50000)</u>
Net profit	` 340000	` 286000

Profit from the offer of A Ltd., would be higher as compared to profit from the offer of B Ltd. Therefore, the offer of A Ltd. should be accepted.

Advantages of Marginal Costing

Marginal costing claims the following advantages:

1. Better Suited for Decision-Making

Marginal costing is better suited to the needs of management. Management is interested to understand the behaviour of costs. Fixed costs are more or less uncontrollable, while variable costs are controllable costs. Cost data prepared, differentiating fixed cost and variable cost, helps the management in decision-making. Marginal Costing helps the management to accept or reject an offer, at a lower price, received from a foreign market, compared to the selling price, prevailing in the local market. Accepting the offer at a reduced rate from a foreign market does not affect the local market sales. It is not possible for the management to offer different prices in the local market. It results in a reduced market rate, totally, and is not, finally, beneficial to the concern.

2. Simple to Operate

Marginal costing is simple to operate. Apportionment of fixed costs is difficult and arbitrary. As the apportionment of fixed costs is, all together avoided, management finds marginal costing simple to understand and operate.

3. No Complication of Over Absorption and Under Absorption

As fixed costs are not apportioned, there is no complication of over absorption and under absorption of overheads.

4. Avoids Misleading Statement

Fixed costs are time costs. They are independent and occur, whether there is production or not. Fixed costs mislead the cost statement. It is better to consider marginal costs only, which fluctuate, in



sympathy, with the volume of production. In the absence of fixed costs, cost statement provides better understanding.

5. Facilitates Profit Maximization

When a number of products are manufactured, marginal costing facilitates the study of relative profitability of different products. By choosing the highest contribution yielding products for production, while utilizing the capacity of the machinery, profitability would be maximized.

6. No Fictitious Profit

When valuation of closing stock includes an element of fixed cost component, current year's fixed overheads are carried forward to the next year. Under Marginal Costing, closing stock is valued at variable cost only, excluding fixed costs. This procedure prevents presentation of fictitious profits.

7. Valuable Adjunct

Marginal Costing is a valuable adjunct to Standard Costing and Budgetary Control.

Disadvantages of Marginal Costing

Marginal costing suffers from the following limitations:

1. Classification of Expenses

Marginal costing assumes all expenses can be classified into fixed and variable. Such classification is not possible with certain expenses such as exgratia amount to Staff (amount not legally bound to pay) and amenities to staff. These expenses are caused, purely, by management decisions, which are voluntary in character. These expenses do not have any relation to volume of output or with time factor. So, it is wrong to assume all expenses can be classified into fixed and variable.

2. All Costs are Variable in the Long Run

It is difficult to segregate all costs into fixed and variable. In reality, all costs are variable in the long run. Even, the machinery can be sold to avoid fixed costs.

3. Valuation of Closing Stock

For valuation of closing stock, fixed costs are not taken into account. The technique of marginal costing is difficult to apply to certain industries where the manufacturing cycle-production of one product – is very long. For instance, in ship building industry, manufacture of one ship or one turbine in BHEL takes years. In such a case, while the manufacture is in progress, the corresponding year's show loss. On completion, the relevant year shows abnormal profits.

4. Resistance of Customers



It is not possible to sell a product, without including the fixed cost component, all the time. In certain circumstances, output may be sold at less than the total cost (aggregate of variable cost as well as fixed cost). But, such course of action cannot be continued for long. At best, this technique of costing can be followed when the product is sold in different markets and price in one market does not affect the other market. An order from a foreign market may be accepted at a lower price, based on marginal costing. This approach cannot be followed for a new customer in a local market. This may, sometimes, lead to a general reduction in selling price and thus to heavy losses. If this course of action were done for a long period, there would be resistance from the existing customers, for the differential selling price.

5. Increased Usage of Automation

Technological automation is much in progress. Where automation is more, the proportion of fixed costs (depreciation and maintenance) increases. A system, which ignores fixed costs, is, therefore, less effective.

6. Balance Sheet does not Show a True and Fair Picture

Balance sheet does not exhibit a true and fair picture, as finished stock and work in progress are valued at marginal cost, which does not include fixed expenses. Thus, the inventory is understated in the balance sheet, which is against the fundamental principles of accounting.

7. Insurance Claim Settlement

In case of fire accident, full loss of stock cannot be recovered, as the stock is valued without taking the fixed cost component. Due to non-consideration of fixed cost, the valuation in accounts presents a lower value and in consequence, insurance company may pay lesser amount than the actual cost towards claim settlement.

8. Cost Control

Cost control can be better achieved with the help of other techniques such as budgetary control and standard costing.

12.5 CHECK YOUR PROGRESS

There are some activities to check your progress. Answer the following:

1. The aim of _____ is to estimate the total cost, total revenue and thereby profit of various sales volume.
2. Contribution = Sales minus _____
3. _____ is the difference between the estimated sale and sales at BEP.



4. _____ is the angle at which the sales line cuts the total cost line.

12.6 SUMMARY

Cost-volume-profit (CVP) analysis is the study of the effect on future profit of changes in fixed cost, variable cost, selling price, sales quantity and sales mix. CVP analysis assumes that the cost structure and the relationships between fixed costs, variable cost and selling price will remain valid during the period under consideration. Therefore, the analysis produces useful results for decisions within the 'relevant range' and the 'relevant period'. Moreover, there are certain simplistic assumptions underlying the CVP analysis which limit the precision and reliability of the result of the analysis. CVP analysis uses a simple equation, which captures the relationships between different variables. Graphical methods are also used for the study. A break-even chart represents the relationships between different variables. Managers use different variations of the simple breakeven chart.

12.7 KEYWORDS

CVP Analysis: It is the study of effects on future profits of changes in fixed cost, variable cost, sales price, quantity and mix.

Contribution: It is the difference between sales and variable cost.

Margin of Safety: Difference between estimated sales and sales at DEP.

Break Even Point: A point where revenue equals total cost.

Angle of Incidence: Angle at which the sales line cuts the total cost line.

12.8 SELF-ASSESSMENT TEST

1. Define 'marginal costing'. How are variable costs and fixed costs treated in marginal costing?
2. What are the important areas of management decisions opened up by the application of marginal costing technique? Answer briefly and to the point.
3. Explain CVP analysis and Break-even-point analysis.
4. In a purely competitive market, 10,000 pocket transistors can be manufactured and sold, and a certain profit is generated. It is estimated that 2,000 pocket transistors need to be manufactured and sold in a monopoly market to earn the same profit. Profit under both the conditions is targeted at ₹ 2,00,000. The variable cost per transistor is ₹ 100 and the total fixed cost is ₹ 37,000. You are required to find out the unit selling prices both under monopoly and competitive conditions.
5. Y Company has just been incorporated and plans to produce a product that will sell for ₹ 10 per unit. Preliminary market survey shows that demand will be around 10,000 units per year. The



company has the choice of buying one of the two machines, each of which has a capacity of 10,000 units per year. Machine A would have fixed costs of ₹ 30,000 per year and would yield a profit of ₹ 30,000 per year on the sale of 10,000 units. Machine B would have fixed costs of ₹ 18,000 per year and would yield a profit of ₹ 22,000 per year on the sale of 10,000 units. Variable costs behave linearly for both machines. Required:

- (a) Break-even sales for each machine.
 - (b) Sales level where both machines are equally profitable.
 - (c) Range of sale where one machine is more profitable than the other.
6. A company has an opening stock of 6,000 units of output. The production planned for the current period is 24,000 units and expected sales for the current period amounted to 28,000 units. The selling price per unit of output is ₹ 10. Variable cost per unit is expected to be ₹ 6 per unit while it was only ₹ 5 per unit during the previous period. What is the break-even volume for the current period if the total fixed costs for the current period are ₹ 86,000? Assume that the first-in-first-out system is followed.

12.9 ANSWERS TO CHECK YOUR PROGRESS

1. CVP Analysis
2. Variable cost
3. Margin of Safety
4. Angle of Incidence

12.10 REFERENCES/SUGGESTED READINGS

1. Ashish K. Bhattacharya, Principles and Practices of Cost Accounting, New Delhi: Prentice Hall of India Private Limited.
2. Charles T. Horngren, Cost Accounting, A Managerial Emphasis, Prentice Hall Inc.
3. D. T. Decoster and E. L. Schafer, Management Accounting, New York: John Willey and Sons.
4. John G. Blocker and Wettmer W. Keith, Cost Accounting, New Delhi: Tata McGraw Publishing Co. Ltd.



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PRACTICAL APPLICATIONS OF MARGINAL COSTING

STRUCTURE

- 13.0 Learning Objectives
- 13.1 Introduction
- 13.2 Marginal Costing Techniques
- 13.3 Product Mix
- 13.4 Make or Buy Decision
- 13.5 Decisions on Methods of Manufacturing
- 13.6 Shutting Down Decisions
- 13.7 Marginal Cost and Product Pricing
- 13.8 Check Your Progress
- 13.9 Summary
- 13.10 Keywords
- 13.11 Self-Assessment Test
- 13.12 Answers to Check Your Progress
- 13.13 References/Suggested Readings

13.0 LEARNING OBJECTIVE

This lesson will make you familiar with:

- Taking the decisions with regard to make or buy.
- Decisions on methods of manufacturing.
- Decision regarding product mix.
- Shutting down decisions.
- Marginal cost and product pricing.



13.1 INTRODUCTION

Marginal costing technique is frequently used for short-term decision-making. As has been seen earlier, the contribution margin helps to forecast income, since fixed cost remains unchanged. It has to be remembered that the fixed cost remains unchanged over a relevant period, not a long period, and within the relevant range, perhaps not if production doubles the capacity. Within this parameter, variable costs, which vary in direct proportion to the changes in the activity level are the only relevant costs for short-term decision-making. In such decisions, fixed costs do not count. The basic consideration in all decision-making is that marginal contribution is a reliable index of profitability. When alternative courses of action are available, the most suitable course will be one which gives highest contribution, provided there are no limiting factors. Fixed costs will not be taken into consideration except where these are liable to change as a result of the proposed action. For example for an additional product, if a machine has to be purchased or a conveyor belt has to be extended, the fixed cost will increase marginally.

13.2 MARGINAL COSTING TECHNIQUES

Marginal costing technique assumes that fixed costs are given and only variable costs and revenue can be influenced by short-term managerial actions. Therefore, in the short-term, profit can be maximised by maximising total contribution, which is the difference between total revenue and total variable costs. Managers decide the use of scarce resources to maximise total contribution by evaluating alternative uses of available resources. Underlying assumptions that fixed costs do not change with change in the activity level and that there is a linear relationship between revenue and variable costs, which do not hold good beyond the relevant range. Similarly, in practice, it is difficult to segregate the total cost into fixed and variable elements accurately. All these limit the reliability of marginal costing techniques. In spite of these limitations, the marginal costing technique has emerged as an important management tool.

13.3 PRODUCT MIX

13.3.1 Product Profitability

If the same facilities can be used to produce more than one product, contribution per unit is taken as the profitability index for each product. The assumption is that there is no limiting factor and there is no limit on the number of units of each product, which can be produced and sold. In normal absorption costing, fixed costs are apportioned equitably over products to determine each product's profitability. Apportionment is based on the estimated usage of common resources by each product. The result may



be misleading because it may lead to the conclusion that products, which show a net loss, should be discontinued.

13.3.2 Limiting Factor Analysis

Limiting factor or key factor is defined as anything which limits the activity of an entity. An entity seeks to optimize the benefit it obtains from the limiting factor. Examples are a shortage of supply of a resource and a restriction on sales at a particular price. Limiting factors restrict the number of units that can be produced or sold. Typical examples of limiting factors are: a) Sales demand in quantity, b) Sales demand in value, c) A limit to availability of material, d) A limit to availability of a particular grade of labour, e) A limit to machine capacity, and f) A shortage of working capital. More than one limiting factor may operate at a particular point in time. Under such a situation, the factor, which keeps the activity level at the minimum, should be considered as the key factor. However, the impact of other factors should also be considered in arriving at the final decision. Optimal utilization of a scarce resource implies that all the available supply of that resource is used up. Therefore, the contribution fund can be maximised by maximising the production and sale of the product, which earns the highest contribution per unit of the limiting factor. Thus, to determine the optimum production plan, the contribution per unit of the limiting factor for each product is calculated and products are ranked in descending order of contribution per unit of the limiting factor.

Example 13.1: A firm can produce two products A and B. The following are the cost structures:

	Product A (₹)	Product B (₹)
Selling price per unit	20	22
Variable manufacturing cost per unit	5	6
Variable selling expenses per unit	3	2
Labour hours per unit	2	3

Total available labour hours are 1,200 per week. Assuming that the availability of labour hours is the only limiting factor, determine which product should be manufactured and sold.

Solution:

Contribution Statement		
	Product A	Product B
(a) Selling price	₹20	₹22



(b) Variable costs:

Manufacturing	5	6
Selling expenses	<u>3</u>	<u>2</u>
Total cost per unit	<u>₹ 8</u>	<u>₹ 8</u>
(c) Contribution per unit (a - b)	<u>₹ 12.</u>	<u>₹ 14</u>
(d) Labour hours per unit	2	3
(e) Contribution per labour hour (c/d)	<u>₹ 6</u>	<u>₹ 4.67</u>

If the firm utilizes all the available machine hours to produce product A, it will earn a total contribution of ₹ 6 x 1,200, i.e. ₹ 7,200. On the other hand, if it uses the available labour hours to produce product B, it will earn a total contribution of ₹ 4.67 x 1,200, i.e. ₹ 5,600. Therefore, product A should be manufactured. This can also be verified as follows:

	<u>Product A</u>	<u>Product B</u>
(a) Available labour hour	₹ 1200	₹ 1200
(b) Labour hours per unit	2	3
(c) Maximum output (a/b)	600 Units	400 Units
(d) Contribution per unit	₹ 12	₹ 14
<u>Total contribution (c x d)</u>	<u>₹ 7200</u>	<u>₹ 5600</u>

These calculations show that product A is more profitable than B. The same result was reflected by the method of ranking products based on the contribution per labour hour. Determination of the limiting factor poses problems because it changes rapidly. A detailed analysis of the economic environment and the supply market of various resources as well as internal factors are necessary to identify potential limiting factors. Identification of limiting factors facilitates performance planning. The determination of limiting factor is comparatively simple when only one product is produced or when more than one product is produced using the same raw materials, labour and other resources using the same process. However, it becomes very complex when a number of products are manufactured from a variety of materials with different types of labour using different types of machines or applying different processes. When there is more than one limiting factor operating at a particular point in time, the profit maximising budget could be determined by formulating and solving a linear programming problem.



This is beyond the scope of this book. However, simpler decision models may be used when activities are restricted by only two limiting factors.

13.4 MAKE OR BUY DECISION

If no limiting factor is in operation, the decision to buy or to manufacture a product rests on whether the bought-out price of an article is lower than its marginal cost. The fixed cost is irrelevant for our decision because fixed cost will not change as a result of buying the product/component from outside. If the bought-out price of an article is lower than its marginal cost, it will be profitable to buy the article from outside in all circumstances. The firm will save marginal cost and will spend lower than the marginal cost to buy the article. If the bought-out price is higher than the marginal cost, the total cost of production will increase, if the firm decides to buy the article from outside. Therefore, if it has a choice, it will buy the article for which the difference between the bought-out price and the marginal cost is the lowest among article under consideration. If a limiting factor is in operation, the excess of bought-out price over marginal cost per unit of the limiting factor is to be considered. The article having the lowest excess of bought out price over its marginal cost per unit of the limiting factor will be selected for buying out from outside.

Example 13.2: The cost of manufacturing and bought-out prices of four articles is as follows:

Article	A	B	C	D
Production cost per article:				
Marginal cost	₹ 10.00	₹ 12.00	₹ 15.00	₹ 15.00
Fixed cost	2.00	4.00	5.00	15.00
Total cost	12.00	16.00	20.00	30.00
Production per-man hour	0.25	0.20	0.20	0.33
Production per machine hour	1.00	0.50	0.25	0.20
Bought-out price	₹ 9.00	₹ 17.00	₹ 22.00	₹ 26.00

Rank the products in the order of your preference for buying them from outside (a) when there is no limiting factor; (b) if man-hour is the limiting factor, (c) if machine capacity is the limiting factor.

Solution:



Articles	A	B	C	D
Bought-out price per unit	₹ 9.00	₹ 17.00	₹ 22.00	₹ 26.00
Marginal cost (per unit) of production	10.00	12.00	15.00	15.00
Excess of bought-out price over marginal cost per article	-1.00	5.00	7.00	11.00
Excess per man-hour	-1.00 x 0.25 = - 0.25	5.00 x 0.20 = 1.00	7.00 x 0.20 = 1.40	11.00 x 0.33 = 3.63
Excess per machine hour	-1.00 x 1 = -1.00	5.00 x 0.50 = 2.50	7.00 x 0.25 = 1.75	11.00 x 0.20 = 2.20

In case of article A, the bought-out price is lower than the marginal cost, hence to purchase A from outside is always profitable.

Ranking of products in order of preference for buying out:

- (a) When there is no limiting factor 1st A, 2nd B, 3rd C, 4th D
- (b) When man-power is the limiting factor 1st A, 2nd B, 3rd C, 4th D
- (c) When machine capacity is the limiting factor 1st A, 2nd C, 3rd D, 4th B

13.5 DECISION ON METHODS OF MANUFACTURING

Marginal costing technique can be used to choose from alternative methods of manufacturing. The method, which generates the highest contribution, is the most desirable method. The decision, therefore, rests on the contribution per unit or the contribution per unit of the limiting factor, if a limiting factor is identified.

Example 13.3: An undertaking is producing an article, the selling price of which is ₹ 20 per unit. A decision has to be taken whether:



- (a) to produce by hand (Method A); or
 (b) to produce by machine, one operator to one machine (Method B); or
 (c) to produce by machine, one operator to two machines (Method C); or
 (d) to produce by machine, one operator to three machines (Method D).

The cost of manufacturing the article by different methods is as follows:

Method	A	B	C	D
Cost per article (₹):				
Material 1 unit	5.00	5.00	5.00	5.00
Direct labour @ ₹ 3 per man-hour	5.00	3.00	1.70	1.50
Variable overhead @ ₹ 2 per man-hour	3.30	2.00	1.10	1.00
Variable overhead @ ₹ 1 per machine-Hour	-	1.00	1.10	1.50
Total marginal cost	13.30	11.00	8.90	9.00
Fixed overhead @ ₹ 1 per man-hour	1.70	1.00	0.90	0.50
Fixed overhead @ ₹ 6 per machine-Hour	-	6.00	6.60	9.00
Total cost	15.00	18.00	16.40	18.50
Production per man-hour	0.60	1.00	1.75	2.00
Production per machine-hour	-	1.00	0.875	0.66

Solution:

Method	A	B	C	D
Selling prices per unit (₹)	20.00	20.00	20.00	20.00
Marginal cost per unit (₹)	(13.30)	(11.00)	(8.90)	(9.00)
Contribution per unit	6.70	9.00	11.10	11.00
Contribution per unit of material	6.70/1 = ₹ 6.70	9.00/1 = ₹ 9.00	11.10/1 = ₹ 11.00	11.00/1 = ₹ 11.00



Contribution per man hour	6.70 x 0.6 = ₹ 4.20	9.00 x 1 = ₹ 9.00	11.10 x 1.75 = ₹ 19.40	11.00 x 2 = ₹ 22.00
Contribution per machine hour		9.00 x 1 = ₹ 9.00	11.10 x 0.875 = ₹ 9.70	11.00 x 0.66 = ₹ 7.30

If there is no limiting factor, Method C should be selected as it generates the highest contribution per unit. If a limiting factor is in operation, the method to be adopted should be the one, which gives the highest contribution per unit of the limiting factor. Thus,

- (a) If material is the limiting factor, method C should be adopted.
- (b) If man-power is the limiting factor, method D should be adopted.
- (c) If machine capacity is the limiting factor, method C should be adopted.

13.6 SHUTTING DOWN DECISIONS

Marginal costing technique can be used in deciding whether to discontinue a section of the business. If we assume that discontinuance will not influence the total fixed costs of the firm, the decision will hinge on whether the particular section of the business is contributing towards fixed overheads. Closure of an activity, which generates positive contribution, reduces the current operating profit or increases the operating loss. In certain situations, a part of the fixed cost is avoided by temporary closure. In such a situation, if avoidable fixed cost is higher than expected contribution, the business segment should be closed.

Example 13.4: A company making a single product has a factory at Howrah (near Kolkata) and distributes its product through three depots situated in Kolkata, Kanpur and Chennai. It is estimated that during the year 1, 00,000 units will be manufactured and sold at a price of ₹ 30 per unit, the sales being spread is as follows:

Kolkata	70,000 units
Kanpur	20,000 units
Chennai	10,000 units

Standard costs of production are:



Direct materials ₹ 6 per unit
 Direct wages ₹ 5 per unit
 Factory variable overheads 160% of direct wages
 Factory fixed overheads ₹ 6, 00,000 per annum

The cost of selling and distribution incurred by the depots are:

	Calcutta	Kanpur	Chennai	
Fixed Cost per annum	100000	70,000	30000	
Variable cost (% of sales value)		10%	8%	7%

The budget for the business prepared from these figures caused the management to consider the closure of Kanpur and/or Chennai depots. If this is done, all sales in these areas will be lost, but sales from the Kolkata depot will remain unaffected.

You are required to

- Prepare a budget for the business from the figures provided; and
- Advise the management on the desirability of closing down Kanpur and Chennai depots.

Solution

	Calcutta	Kanpur	Chennai	Total
Unit	70,000	20,000	10,000	100,000
Sales	₹ '000	₹ '000	₹ '000	₹ '000
	2,100	600	300	3000
Production Cost :				
Direct Material				600
Direct Wages				500
Factor Variable overheads				800
Factory fixed overheads				600
Allocated pro-rata to units	1,750	500	250	2500
Gross Profit	350	100	50	500



Selling and distribution				
Variable	210	48	21	279
Fixed	100	70	30	200
Local costs	310	118	51	479
Net Profit/(loss)	40	(18)	(1)	21

This presentation shows that operations of Kanpur and Chennai depots have resulted in losses and this leads the management to consider their closure. An alternative presentation using the marginal cost approach helps the management to take correct decision.

	Kolkata	Kanpur	Chennai	Total
Sales	2100	600	300	3000
Variable costs of production				
Direct materials				600
Direct wages				500
Variable factory overheads				800
Allocated pro-rata to units	1330	380	190	1900
	770	220	110	1,100
Variable costs of selling and distribution	210	48	21	279
Contribution to all fixed expenses	560	172	89	821
Fixed costs of selling and distribution assuming that they are specific to each depot	100	70	30	200
Contribution to fixed factory overheads	460	102	59	621
Fixed factory overheads				600
Net profit.				21

This presentation shows that sales at Kanpur and Chennai depots make contribution of ` 1, 02,000 and ` 59,000 respectively, towards fixed factory overheads. Therefore, none of those two depots should be closed down. In the above presentation, it is assumed that fixed selling and distribution costs could be avoided by closing those depots. This may not happen in the short term.



13.7 MARGINAL COST AND PRODUCT PRICING

A long-term pricing policy should aim to recover more than the 'full cost' to ensure a reasonable return on capital employed. A firm cannot survive if it has to sell its products continuously below 'full cost'. Marginal cost may be used as a basis for short-term pricing decisions. Usually, marginal cost is used to determine prices for non-repetitive orders under difficult business conditions or to use spare capacity when acceptance of lower contributions and profit margins may be necessary. When capacity is unused, acceptance of an order with lower contribution helps partial recovery of the fixed cost. Factors to be considered in fixing selling prices when demand is below normal are the amount and the rate of contribution which the proposed selling price would yield; probability of securing an order with higher contribution during the period of execution of the order; proposed concession, when compared with the normal selling price on full cost basis; probable adverse effects on future sales. When one or more resources are scarce, (e.g. material is scarce), the first consideration must be to reserve the same for orders that would yield the highest contribution per unit of the scarce resource (the limiting factor). A decision to sell at a lower price might also have an adverse effect on the firm's general level of selling prices in its established market. This aspect should also be carefully examined before accepting an order with contribution lower than the normal contribution.

Other factors, which strongly justify acceptance of an order with lower contribution at the time adverse trade situations, are to: (a) hold together the skilled labour force; (b) keep the plant and machinery in operation and the workers busy; (c) utilize materials already received; (d) avoid costs involved in the closing and re-opening of the plant; (e) maintain the sales of complementary products at a satisfactory level; and (f) maintain position in established markets to avoid additional sales promotion expenses in reestablishing the markets.

Selling below full cost prices, even under a normal situation, may be adopted in order to: (a) introduce a new product, (b) execute an order in a special market segment (say, defense supply) which is immune from other market segments; (c) expand the export market; and (d) dispose of a product which deteriorates fast.

Example 13.5: The Everest Snow company manufactures and sells direct to consumers 10,000 jars of 'Everest Snow' per month at ₹ 1.25 per jar. The company's normal production capacity is 20,000 jars of snow per month. An analysis of cost for 10,000 jars is given below:

Direct material	1000
-----------------	------



Direct labour	2475
Power	140
Miscellaneous supplies	430
Jars	600
Fixed expenses of manufacturing, selling and administration	7955
Total	12600

The company has received an offer for the export, under a different brand name for 1, 20,000 jars of snow at 10,000 jars per month at 75 paise a jar. Write a short report on the advisability or otherwise of accepting the offer.

Solution:**Statement of Contribution from the Export Order**

Selling price per unit	₹ 0.7500
Variable cost per unit:	
Direct material	₹ 1,000/10,000 0.1000
Direct labour	₹ 2,475/10,000 0.2475
Power	₹ 140/10,000 0.0140
Misc. supplies	₹ 430/10,000 0.0430
Jars	₹ 600/10,000 0.0600 (0.4645)
Contribution margin per unit	₹ 2855
Contribution per month:	₹ 0.2855 x 10,000 ₹ 2855

Acceptance of the export order would result in incremental contribution of ₹ 2,855 per month.

The following statement reveals monthly profit, with and without acceptance of order.

	Present position (10,000 jars)	Proposed offer (10000 jars)	Total (20000 jars)
Sale Value	₹ 12,500	7500	20000
Variable cost of sales @ ₹ 0.4645	(4,645)	(4,645)	(9290)
Contribution	7,855	2855	10710



Fixed Cost	(7,955)	-	(7955)
Profit	-100	2855	2755

It is advisable to accept the order provided:

- (a) interest on incremental working capital would be lower than the total contribution from the export order;
- (b) acceptance of the export order with lower contribution would not adversely affect the price in home-maker or the future sales;
- (c) there is no possibility for dumping, i.e. re-export by the supplier; and
- (d) there is no possibility of securing an order with higher contribution during the period of execution of the order.

Example 13.6: AB Ltd. manufactures three products X, Y, and Z. Standard selling process and costs have been established for 2003 as follows: .

	X	Y	Z
Selling price per unit	` 28	` 60	` 125
Direct materials per unit	8	15	20
Direct wages per unit	10	20	50
Variable overheads per unit	5	10	25

Direct wages are paid at the rate of ` 2 per hour in each case. Fixed overheads are budgeted at ` 25,000 for the coming year.. In the short run, the company cannot increase its direct labour strength and as a result, only 35,000 direct labour hours will be available in the coming year. The company has commitments to produce 500 units of each product. It has been suggested that after meeting the minimum requirements for X, Y and Z, the balance of available direct labour hours should be used to produce product Z. You are required:

- A) To prepare an income statement showing the expected results if the proposal is adopted.
- B) Comment on the statement you have produced in (a) and prepare an income statement for any alternative policy, which you consider would be more profitable.
- C) Basing your calculations on your suggestion in (b), show the company's break-even point in terms of units and sales value.



D) Show the sale value which is required to produce an after tax return of 10% on capital employed of ₹ 1,00,000 assuming tax rate of 50%.

Solution:

(a) Income Statement Showing Results if the Proposal is Adopted (₹ '000)

	Product X	Product Y	Product Z	Total
1. Sales value	14.00	30.00	137.50	181.50
2. Variable costs:				
Direct materials	4.00	7.50	22.00	33.50
Direct wages	5.00	10.00	55.00	70.00
Variable overheads	2.50	5.00	27.50	35.00
Total	11.50	22.50	104.50	138.50
3. Contribution fund (1 - 2)	2.50	7.50	33.00	43.00
4. Fixed overheads				25.00
5. Operating profit (3 - 4)				18.00

Thus, the operating profit will be ₹ 18,000.

Notes: (i) Total available direct labour hours 35,000

Labour hours to be utilized to meet commitments:

(500 x 5 + 500 x 10 + 500 x 25)	20,000
Balance hours available	15,000

(ii) Additional units of Z to be produced 15,000/25, i.e. 600 units

Thus, total production of Z will be (500 + 600), i.e. 1,100 units

(iii) Required direct labour hours for each unit of production of

X: 10/2, i.e. 5 hours, Y: 20/2, i.e. 10 hours and Z: 50/2, i.e. 25 hours.

(b) Profitability Statement

	Product X	Product Y	Product Z
1. Selling price	₹28	₹60	₹125
2. Variable costs per unit:			
Direct materials	8	15	20



Direct wages	10	20	50
Variable overheads	5	10	25
Total	₹ 23	₹ 45	₹ 95
3. Contribution per unit (1 - 2)	₹ 5	₹ 15	₹ 30
4. Required labour hours per unit	5	10	25
5. Contribution per labour hour (3/4)	₹ 1.00	₹ 1.50	₹ 1.20
6. Ranking	III	I	II

Availability of labour hours being limited, AB Ltd. should produce as many unit of T as possible. There being no restriction on the units of Y that can be sold, available labour hours, after meeting the commitments for products X and Z should be allocated to Y. Thus, optimal product mix is:

Product	Units to be produced	Allocated Labour hours
X	500	2500
Y	2,500	20000 (Balancing
Z	500	12500 figure)
		35,000

Income Statement with the above Alternative

	Products			Total
	X	Y	Z	(₹ '000)
Contribution	2.5	30.00	15.00	47.50
Fixed costs				25.00
Operating profit (1 - 2)				22.50

(c) Break-even point in terms of units and sales

Contribution from committed production and sales:

Production X:	500 x ₹ 05.00	₹ 2,500
Production Y:	500 x ₹ 15.00	7,500
Production Z:	500 x ₹ 30.00	15,000
		₹ 25,000

Fixed cost being ₹ 25,000, break-even sales of AB Ltd. is sales of 500 units of each of the three products X, Y and Z. Break-even sales in terms of value is (500 x 28 + 500 x 60 + 500 x 125), i.e. ₹ 1,06,500.

(d) Sales value to earn a post-tax return of 10% on capital employed



Required return 10% of ₹ 1,00,000 i.e. ₹ 10,000

$$\text{Required operating profit} = \frac{\text{Required return}}{(1 - \text{tax rate})} = \frac{10,000}{(1 - 0.50)} = \frac{10,000}{0.50} = 20,000$$

Committed sales will earn contribution enough to meet fixed costs. Therefore, to earn an operating profit of ₹ 20,000 additional units of Y is to be sold to earn a contribution of ₹ 20,000. Thus, the total number of units of Y to be sold is $(500 + ₹ 20,000/15)$ i.e. 1,833.33 or 1,834 units.

Thus, total sale value is

X:	500 x ₹ 28	= ₹ 14,000
Y:	1,834 x ₹ 60	= ₹ 1,10,040
Z:	500 x ₹ 125	= ₹ 62,500
Total		<u>₹ 1,86,540</u>

Example 13.7: The costs per unit of the three products A, B and C of a company are given below:

	Product A	Product B	Product C
Direct material	₹ 20	₹ 16	₹ 18
Direct labour	12	14	12
Variable expenses	8	10	6
Fixed expenses	6	6	4
	<u>46</u>	<u>46</u>	<u>40</u>
Profit	18	14	12
Selling price	<u>64</u>	<u>60</u>	<u>52</u>
No. of units produced	10,000	5,000	8,000

Production arrangements are such that if one product is given up the production of the other can be raised by 50%. The directors propose that C should be given up because the contribution from the product is the lowest. Present suitable analysis of the data indicating whether the proposal should be accepted.

Solution:

Statement Showing Contribution per Unit



	Product A	Product B	Product C
Selling price per unit	₹ 64	₹ 60	₹ 52
Variable costs: Direct material	₹ 20	₹ 16	₹ 18
Direct labour	12	14	12
Variable expenses	8	10	6
	₹ 40	₹ 40	₹ 36
Contribution per unit	₹ 24	₹ 20	₹ 16

In the absence of any limiting factor, the company should produce as many units of A as possible. In case a limiting factor is in operation, contribution per unit of the limiting factor should be used to measure profitability. In this particular case, the limiting factor is not clearly spelt out, although a restrictive condition is specified. It indicates the discontinuance of a product, which will result in the increase in production of other products by 50%. In this situation, a decision to abandon a product line should consider incremental contribution from each of the three alternatives, giving up either product A or product B or product C.

Alternative I- Discontinue product A

Additional contribution:

Product B: $0.5 \times 5,000 \times ₹ 20 = ₹ 50,000$

Product C: $0.5 \times 8,000 \times ₹ 16 = ₹ 64,000$ ₹ 1,14,000

Loss of contribution A: $10,000 \times ₹ 24$ (₹ 2,40,000)

Incremental contribution (₹ 1,26,000)

Alternative II-Discontinue product B

Additional contribution:

Product A: $0.5 \times 10,000 \times ₹ 24 = ₹ 1,20,000$

C: $0.5 \times 8,000 \times ₹ 16 = ₹ 64,000$ ₹ 1,84,000

Loss of contribution B: $5,000 \times ₹ 20$ (₹ 1,00,000)

Incremental contribution ₹ 84,000

Alternative III-Discontinue product C

Additional contribution:

Product A: $0.5 \times 10,000 \times ₹ 24 = ₹ 1,20,000$



B: $0.5 \times 5,000 \times `20 = `50,000$	$`1,70,000$
Loss of contribution A: $8,000 \times `16$	$(1,28,000)$
Incremental contribution	<u>$`42,000$</u>

Incremental contribution is highest from alternative II (discontinuance of product B), and therefore, the decision to discontinue product C is sub-optimal. Product B should be discontinued for maximising profit and proposal to discontinue product C should not be accepted.

13.8 CHECK YOUR PROGRESS

State whether the following statements are true or false:

1. Limiting factors restrict the number of units that can be produced or sold.
2. If no limiting factor is in operation the decision to buy or to manufacture a product depends upon whether the bought out price of an article is higher than its marginal cost.
3. Marginal costing technique can be used in deciding whether to discontinue a section of business or not.
4. A firm can survive in the long run if it has to sell its products continuously below full cost.

13.9 SUMMARY

In this chapter, we have discussed the use of cost information for tactical decisions. Tactical decisions are short-term decisions that aim at maximizing operating profit, with available facilities. Therefore, usually such decisions take into consideration marginal costs only. However, sometimes short-term decision influence fixed costs, e.g. additional advertising expenses. Thus, incremental fixed expenses cannot be ignored. Marginal costing technique is used to determine optimal product-mix. A firm maximizes operating profit by producing products, which contribute highest towards fixed costs and profit. Therefore, contribution per unit of the limiting factor is used as profitability index. The limiting factor is the scarce resource or any other factor, which restricts the activity level. Often other restrictive conditions determine the optimal product-mix. Marginal costing technique is used to decide whether a component is to be manufactured or to be purchased from outside. If spare capacity is available, the product should be manufactured only if variable-manufacturing cost is lower than purchase price. If spare capacity is not available, manufacturing decision results in the discontinuance of another product. Therefore, loss of contribution due to discontinuance should be added to the costs of manufacturing and the total should be compared with the purchase price. If the firm has no choice but to purchase some



components from outside, it decides in favour of the component, manufacturing of which generates savings lowest among the alternative products. For short-term decisions on methods of manufacturing or temporary shut down of plant/ business, managers use marginal costing technique-considerations are similar to those discussed above.

13.10 KEYWORDS

Limiting Factor: It is anything which limits the activity of and entity.

Breakeven Chart: Breakeven chart represents the relationship between different variables.

13.11 SELF-ASSESSMENT TEST

7. What are the important areas of management decisions opened up by the application of marginal costing technique? Answer briefly and to the point.
8. In a purely competitive market, 10,000 pocket transistors can be manufactured and sold, and a certain profit is generated. It is estimated that 2,000 pocket transistors need to be manufactured and sold in a monopoly market to earn the same profit. Profit under both the conditions is targeted at ₹ 2,00,000. The variable cost per transistor is ₹ 100 and the total fixed cost is ₹ 37,000. You are required to find out the unit selling prices both under monopoly and competitive conditions.
9. Y Company has just been incorporated and plans to produce a product that will sell for ₹ 10 per unit. Preliminary market survey shows that demand will be around 10,000 units per year. The company has the choice of buying one of the two machines, each of which has a capacity of 10,000 units per year. Machine A would have fixed costs of ₹ 30,000 per year and would yield a profit of ₹ 30,000 per year on the sale of 10,000 units. Machine B would have fixed costs of ₹ 18,000 per year and would yield a profit of ₹ 22,000 per year on the sale of 10,000 units. Variable costs behave linearly for both machines. Required:
 - (a) Break-even sales for each machine.
 - (b) Sales level where both machines are equally profitable.
 - (c) Range of sale where one machine is more profitable than the other.
10. A company has an opening stock of 6,000 units of output. The production planned for the current period is 24,000 units and expected sales for the current period amounted to 28,000 units. The selling price per unit of output is ₹ 10. Variable cost per unit is expected to be ₹ 6 per unit while it was only ₹ 5 per unit during the previous period. What is the break-even volume for the current



period if the total fixed costs for the current period are ₹ 86,000? Assume that the first-in-first-out system is followed.

11. A Ltd. manufactures three products and the cost particulars for a year are as follows:

	Product X (₹)	Product Y (₹)	Product Z	Sales
2,00,000	4,00,000	2,50,000	Material	1,
00,000	1,50,000	1,25,000		
Labour cost	30,000	50,000	40,000	
Variable overheads	10,000	20,000	25,000	
Fixed Overheads	35,000	50,000	25,000	

The company imports one of the raw materials, which is used in the manufacture of all products.

The consumption of material is as follows:

X - 2,000 kgs.

Y - 5,000 kgs.

Z - 3,000 kgs.

There is a restriction on the import of the material. The management is planning to close down one of the lines of product and utilize the material for other two lines to improve the profitability. As the secretary of the company, prepare a report for the closure of one line for improving the profitability.

12. Mega Corporation manufactures and sells three products to the automobile industry. All the products must pass through a machining process, the capacity of which is limited to 20,000 hours per annum, both by equipment design and government regulation. The following additional information is available:

	Product X (₹)	Product Y (₹)	Product Z
Selling price ₹/ unit	1,900	2,400	4,000
Variable cost ₹/ unit	700	1200	2800
Machine requirement hrs./ unit	3	2	1
Maximum possible sales units	10,000	2,000	1,000

Required: A statement showing the best possible production mix which would provide the maximum profit for Mega Corporation, together with supporting work.



13. A company produces a single product which is sold by it presently in the domestic market at ₹ 75 per unit. The present production and sales is 40,000 units per month representing 50% of the capacity available. The cost data of the product are as under:

Variable cost per unit ₹ 50

Fixed cost per month ₹ 10 lakh.

With a view to improve the profitability, the management has three proposals on hand as under: (a) to accept an export supply order for 30,000 units per month at a reduced price of ₹ 60 per unit, incurring additional variable costs of ₹ 5 per unit towards export packing, duties etc.; (b) to increase the domestic market sales by selling to a domestic chain stores 30,000 units at ₹ 55 per unit, retaining the existing sales at the existing price; (c) to reduce the selling price for the increased domestic sales as advised by the sales department as under:

Reduce selling price per unit by ₹ Increase in sales expected (in units)

5	10,000
8	30,000
11	35,000

Prepare a table to present the results of the above proposals and give your comments and advise on the proposals.

13.12 ANSWERS TO CHECK YOUR PROGRESS

1. True
2. False
3. True
4. False

13.13 REFERENCES/SUGGESTED READINGS

5. Ashish K. Bhattacharya, Principles and Practices of Cost Accounting (3rd.), New Delhi: Prentice Hall of India Private Limited.
6. Charles T. Horngren, Cost Accounting, A Managerial Emphasis, Prentice Hall Inc.
7. D. T. Decoster and E. L. Schafer, Management Accounting, New York: John Willey and Sons.
8. John G. Blocker and Wettmer W. Keith, Cost Accounting, New Delhi: Tata McGraw Publishing Co. Ltd.



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STANDARD COSTING

STRUCTURE

- 14.0 Learning Objective
- 14.1 Introduction
- 14.2 Meaning of Standard Cost and Standard Costing
- 14.3 Steps involved in Standard Costing
- 14.4 Standard Costing Vs. Budgetary Control
- 14.5 Standard Costs and Estimated Costs
- 14.6 Advantages of Standard Costing
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- 14.8 Preliminaries for Establishing Standard Costing System
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- 14.12 Summary
- 14.13 Keywords
- 14.14 Self-Assessment Test
- 14.15 Answers to Check Your Progress
- 14.16 References/Suggested Readings

14.0 LEARNING OBJECTIVE

After reading the lesson, you should be able to

- Define standard costing and explain the steps involved in standard costing
- List out the advantages and disadvantages of standard costing.
- Explain the preliminaries for establishing a standard costing system.
- Make a detailed examination of analysis of variance.



14.1 INTRODUCTION

The basic function of management accounting is to facilitate the managerial control in a business unit or organisation. Management control is the process of evaluating performance and applying corrected measures, if required, so that performance takes place according to plans. The major aspect of managerial control is cost control. And the 'Standard Costing' is that technique which helps management to control costs and business operations. It aims at eliminating wastes and increasing efficiency in performance through setting up standards or formulating different cost plans.

14.2 MEANING OF STANDARD COST AND STANDARD COSTING

The word 'standard' means a benchmark or gauge. The 'standard cost' is a predetermined cost which determines in advance what each product or service should cost under given circumstances. Backer and Jacobsen define "Standard cost is the amount the firm thinks a product or the operation of a process for a period of time should cost, based upon certain assumed conditions of efficiency, economic conditions and other factors". Chartered Institute of Management Accountants, London defines standard cost as "a predetermined cost which is calculated from management's standards of efficient operation and the relevant necessary expenditure". They are the predetermined costs based on technical estimate of material, labour and overhead for a selected period of time and for a prescribed set of working conditions.

The technique of using standard costs for the purposes of cost control is known as standard costing. Brown and Howard define "standard costing is a technique of cost accounting which compares the standard cost of each product or service with actual cost to determine the efficiency of the operation so that any remedial action may be taken immediately". The terminology of Cost Accountancy defines standard costing as "the preparation and use of standard costs, their comparison with actual costs, and the analysis of variance to their causes, and points of incidence". The London Institute of Cost and Works Accountants define it as "An estimate cost, prepared in advance of production or supply correlating a technical specification of material and labour to the price and wage rates estimated for a selected period of time, with an addition of the apportionment of overheads expenses estimated for the same period within a prescribed set of working conditions". Further, it is a system of cost accounting, which is designed to find out how much should be the cost of a product under the existing conditions. The actual cost can be ascertained only when production is undertaken. The predetermined cost is



compared to the actual cost and a variance between the two enables the management to take necessary corrective measures.

14.3 STEPS INVOLVED IN STANDARD COSTING

The technique of standard costing involves the determination of cost before occurring. The standard cost is based on technical information after considering the impact of current conditions. With the change in condition, the cost also can be modified so as to make it more realistic. The standard cost is divided into standards for materials, labour and overheads. The actual cost is recorded when incurred. The standard cost is compared to the actual cost. The difference between the two costs is known as variance. The variances are calculated element wise. The management can take corrective measures to set the things right on the basis of different variances.

The basic purpose of standard costing is to determine efficiency or inefficiency in manufacturing a particular product. This will be possible only if both standard costs and actual costs are given side by side. Though standard costing system will be useful for all types of commercial and industrial undertakings but it will be more useful in those undertakings where production is standardized. It will be of less use in job costing system because every job has different specifications and it will be difficult to determine standard costs for every job.

14.4 STANDARD COSTING VS. BUDGETARY CONTROL

In budgetary control, budgets are used as a means of planning and control. The targets of various segments are set in advance and actual performance is compared with predetermined objects. In this way, management can assess the performance of different departments. On the other hand, standard costing also set standards and enables to determine efficiency on the basis of standards and actual performance. Budgetary control is essential to determine standard costs, whereas, the standard costing system is necessary for planning budgets. In budgetary control, the budgets are prepared for the concern as a whole whereas in standard costing the standards are set for producing a product or for providing a service. In standard costing, unit concept is used while in budgetary control total concept is used. The budgets are fixed on the basis of past records and future expectations. Standard costs are fixed on the basis of technical information. Standard costs are planned costs and these are expected in future. As far as scope is concerned, in case of budgetary control it is much wider than standard costing. Budgets are prepared for incomes, expenditures and other functions of the departments such as purchase, sale, production, finance and personnel department. In contrary, standards are set up for expenditures only



and, therefore, for manufacturing departments standards are set for different elements of cost i.e., material, labour and overheads.

Further, in budgetary control, the targets of expenditure are set and these targets cannot be exceeded. In this system the emphasis is on keeping the expenditures within the budgeted figures. In standard costing the standards are set and an attempt is made to achieve these standards. The emphasis is on achieving the standards. Actual costs may be more than the standard costs and there can be no such thing in budgetary control. The budgetary control system can be applied partly or wholly. Budgets may be prepared for some departments and may not be prepared for all the departments. If a concern is interested in preparing production budget only, it is free to do so. Standard costing cannot be used partially; it will have to be used wholly. The standards will have to be set for all elements of cost. In fact, the systems operate in two different fields and both are complimentary in nature.

14.5 STANDARD COSTS AND ESTIMATED COSTS

The standard costs and estimated costs both are used to determine price in advance. The purpose of both of them is to control cost. They follow the same accounting principles. Despite similarities, they differ in terms of objects and purpose. Estimated costs are based on historical accounting. It is an estimate of what the cost will be. It is a cost of guesswork or reasonable estimate for the costs in future. On the other hand, standard costs are based on scientific analysis and engineering studies. Standard costing determines what the cost should be. Standard costs are used as a device for measuring efficiency. The standards are predetermined and a comparison of standards with actual costs enables to determine the efficiency of the concern. Estimated costs cannot be used to determine efficiency. It only determines the expected costs. An effort is made that estimated cost should almost be near to actual costs. The purpose of determining estimated costs is to find out selling price in advance to take a decision whether to produce or to make and also to prepare financial budgets. Estimated costs do not serve the purpose of cost control. On the other hand, standard costs are helpful in cost control. The analysis of variance enables to take corrective measures, if necessary. Standard costs are not easily changed. The standards are set in such a way that small changes in conditions do not require a change in standards. Estimated costs are revised with the change in conditions. They are made more realistic by incorporating changes in prices. Standard costs are more static than estimated costs. Estimated costs are used by the concern using historical costing. Standard costing is used by those concerns which use standard costing system. Standard costing is a part of cost accounting process while estimated costs are statistical in nature and as



such they may not become a part of accounting.

14.6 ADVANTAGES OF STANDARD COSTING

Standard costing is not only helpful for cost control purposes but it is also useful in production planning and policy formulation. It derives following advantages:

1. Measurement of Efficiency: It is a tool for assessing the efficiency after comparing the actual costs with standard costs to enable the management to evaluate performance of various cost centres. By comparing actual costs with standard costs variances are determined and management is able to identify the place of inefficiencies. It can fix responsibility for deviation in performance. A regular check on various expenditures is also ensured by standard costing system. The standards are being constantly analyzed and an effort is made to improve efficiency. Whenever a variance occurs the reasons are studied and immediate corrective measures are undertaken.

2. Production and Price Policy Formulation: It becomes easy to formulate production plans by taking into account standard costs. It is also supportive for finding prices of various products. In case, tenders are to be submitted or prices are to be quoted in advance then standard costing produces necessary data for price fixation.

3. Reduction of Work: In this system, management is supplied with useful information and necessary information is recorded and redundant data are avoided. The report presentation is simplified and only required information is presented in such a form that management is able to interpret the information easily and usefully. Therefore, standard costing reduces clerical work to a considerable extent

5. Management by Exception: Management by exception means that everybody is given a target to be achieved and management need not supervise each and everything. The responsibilities are fixed and everybody tries to achieve his targets. If the things are going as per targets then the management needs not to bother. Management devotes its time to other important things. So, management by exception is possible only when targets of work can be fixed. Standard costing enables the determination of targets.

14.7 LIMITATIONS OF STANDARD COSTING

Besides all the above benefits derived from this system, it has a number of limitations, which are discussed as follows:

1. Standard costing cannot be used in those concerns where non-standard products are produced.
2. The time and motion study is required to be undertaken for the process of setting up standards. These studies require a lot of time and money. Further, the process of setting up standards is a



difficult task, as it requires technical skill.

3. There are no inset circumstances to be considered for fixing standards. With the change in circumstances the standards are also to be revised. The revision of standard is a costly process.
4. This system is expensive and small concerns may not afford to bear the cost. For small concerns, the utility from this system may be less than the cost involved in it.
5. The fixing of responsibility is not an easy task. The variances are to be classified into controllable and uncontrollable variances. The responsibility can be fixed only for controllable variances not in the case of uncontrollable.
6. The industries liable for frequent technological changes will not be suitable for standard costing system. The change in production process will require a revision of standard. A frequent revision of standard will be costly. So this system will not be useful for industries where methods and techniques of production are fast changing.

14.8 PRELIMINARIES FOR ESTABLISHING STANDARD COSTING SYSTEM

The establishment of a standard costing system involves the following steps:

1. Determination of Cost Centre: A cost centre may be a department or part of a department or item of equipment or machinery or a person or a group of persons in respect of which costs are accumulated and one where control can be exercised. Cost centres are necessary for determining the costs.

2. Classification of Accounts: Classification of accounts is necessary to meet a required purpose i.e., function, asset or revenue item. Codes can be used to have a speedy collection of accounts. A standard is a predetermined measure of material, labour and overheads. It may be expressed in quantity and its monetary measurements in standard costs.

3. Types of Standards: The standards are classified into three categories:

(i) Current Standard. A current standard is a standard which is established for use over a short period of time and is related to current condition. It reflects the performance which should be accomplished during the current period. The period for current standard is normally one year. It is supposed that the conditions of production will remain unchanged. In case there is any change in price or manufacturing condition, the standards are also revised. Current standard may be ideal standard and expected standard.

(a) Ideal Standard. This standard represents a high level of efficiency. It is fixed on the assumption that favourable conditions will prevail and management will be at its best. The price paid for materials will be lowest and wastages cost of labour and overhead expenses will be minimum possible.



(b) Expected Standard. This standard is based on expected conditions. It is the target which can be achieved if expected conditions prevail. All existing facilities and expected changes are taken into consideration while fixing these standards. An allowance is given for human error and normal deficiencies. It is realistic and an attainable and it is used for fixing efficiency standard.

(ii) Basic Standard: A basic standard is established for use for an indefinite period or a long period. These standards are revised only on the changes in specification of material and technology production.

(iii) Normal Standard: Normal standard is a anticipated standard which can be attained over a future period of time, preferably long enough to cover one trade cycle. This standard is based on the conditions which will cover a future period, say 5 years, concerning one trade cycle. If a normal cycle of ups and downs in sales and production is 10 years then standard will be set on average sales and production which will cover all the years.

4. Organization for Standard Costing: In a business concern, a standard costing committee is formed for the purpose of setting standards. The committee includes production manager, purchase manager, sales manager, personnel manager, chief engineer and cost accountant. The Cost Accountant acts as a coordinator of this committee. He supplies all information for determining the standard and later on coordinates the costs of different departments. He also informs the committee about the change in price level, etc. The committee may revise the standards in the light of the changed circumstances.

5. Setting of Standards: The standard for direct material, direct labour and overhead expenses are fixed. The standards for direct material, direct labour and overheads should be set up in a systematic way so that they can be used as a tool for cost control easily.

14.9 ANALYSIS OF VARIANCES

The divergence between standard costs, profits or sales and actual costs, profits or sales respectively will be known as variances. The variances may be favourable and unfavourable. If actual cost is less than the standard cost and actual profit and sales are more than the standard profits and sales, the variances will be favourable. On the contrary, if actual cost is more than the standard cost and actual profit and sales are less than the standard profits and sales, the variances will be unfavourable. The variances are related to efficiency. If variances are favourable, it will show efficiency and if variances are unfavourable it will show inefficiency. The variances may be classified into four categories such as Direct Materials Variances, Direct Labour Variances, Overheads Cost Variances and Sales or Profit Variances.

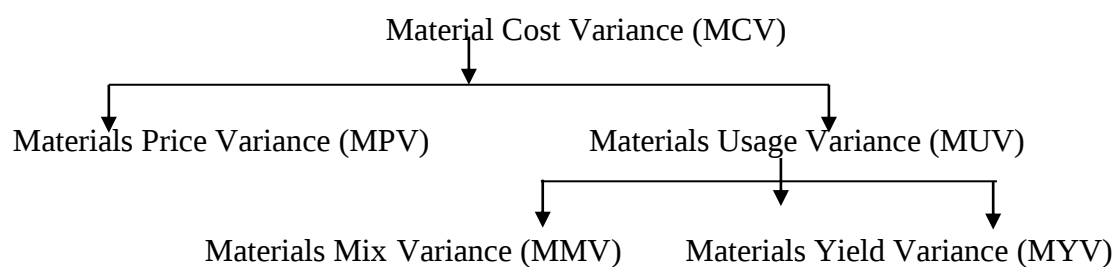


14.9.1 Direct Material Variances

Direct material variances are also known as material cost variances. The material cost variance is the difference between the standard cost of materials that should have been incurred for manufacturing the actual output and the cost of materials that has been actually incurred. Material Cost Variance comprises of: (i) Material Price Variance and (ii) Material Usage Variance: Material usage variance may further be subdivided into material Mix Variance and Material Yield Variance.

Chart 14.1 depicts the divisions and subdivisions of material variances.

Chart 14.1



The following equations may be used for verification of material cost variances.

- (i) $MCV = MPV + MUV$ or $MPV + MMV + MYV$
- (ii) $MUV = MMV + MYV$

(a) Materials Cost Variance: Material cost variance is the difference between standard materials cost and actual materials cost. Material cost variance arises due to change in price of materials and variations in use of quantity of materials. Material cost variance is ascertained as such:

Materials Cost Variance = Standard Material Cost – Actual Material Cost

Standard Material Cost = Standard Price per unit x Standard Quantity of materials

Actual Material Cost = Actual price per unit x Actual quantity of materials.

If the standard cost is more than the actual cost, the variance will be favourable and on the other hand, if the actual cost is more than the standard cost, the variance will be unfavourable or adverse.

(b) Materials Price Variance: Materials price variance arises due to the standard price specified and actual price paid. It may also arise due to:

- (i) Changes in basic prices of materials,
- (ii) failure to purchase the quantities anticipated at the time when standards were set,
- (iii) failure to secure discount on purchases,



- (iv) failure to make bulk purchases and incurring more on freight, etc.,
- (v) failure to purchase materials at proper time, and
- (vi) Not taking cash discount when setting standards.

Materials Price Variance = Actual Quantity (Standard price – Actual price)

In this case actual quantity of materials used is taken. The price of materials is taken per unit. If the answer is in plus, the variance will be favourable and it will be unfavourable if the result is in negative.

(c) Material Usage Variance. Material usage (or quantity) variance arises due to the difference in standard quantity specified and actual quantity of materials used. This variance may also arise due to:

- (i) Negligence in use of materials,
- (ii) More wastage of materials by untrained workers or defective methods of production,
- (iii) Loss due to pilferage,
- (iv) Use of material mix other than the standard mix,
- (v) More or less yield from materials than the standard set, and
- (vi) Defective production necessitating the use of additional materials.

Materials usage variance = Standard Price (Standard Quantity – Actual Quantity)

The quantities of material specified and actually used are taken and standard price per unit is used. If the answer from the above mentioned formula is in plus, the variance will be a favourable variance but if the answer is in minus the variance will be unfavourable or adverse.

Example 14.1: Following is the data of a manufacturing concern. From the figures given below, calculate (i) Materials Cost Variance, (ii) Material Price Variance, and (iii) Material Usage Variance. The standard quantity of materials required for producing one ton of output is 40 units. The standard price per unit of materials is ₹ 3. During a particular period 90 tons of output was undertaken. The materials required for actual production were 4,000 units. An amount of ₹ 14,000 was spent on purchasing the materials.

Solution:

Standard quantity of material (SQ) = (90 x 40) = 3600 units

Standard price per unit = ₹ 3

Actual price per unit = 14000/4000 = ₹ 3.50

(i) Material Cost Variance = Standard material cost – Actual material cost



Standard material cost = Standard quantity x Standard price (3,600 x 3 = ₹ 10,800)

$$= 10,800 - 14,000$$

$$= (-) ₹ 3,200 \text{ Adverse}$$

(ii) Material Price Variance = Actual Quantity (Standard price per unit – Actual price per unit)

$$= 4,000 (3.00 - 3.50)$$

$$= 4,000 (-0.50)$$

$$= (-) ₹ 2,000 \text{ Adverse}$$

(iii) Material Usage Variance = Standard Price per unit (SQ – AQ)

$$= 3 (3,600 - 4,000)$$

$$= 3 (-400) = (-) ₹ 1,200 \text{ Adverse}$$

Verification: MCV = MPV + MUV

$$- 3,200 = - 2,000 - 1,200$$

$$- 3,200 = - 3,200$$

Example 14.2: From the data given below, calculate: (i) Material Cost Variance, (ii) Material Price Variance, and (iii) Material Usage Variance.

Product	Standard Quantity (Units)	Standard Price (₹)	Actual Quantity (Units)	Actual Price (₹)
A	1,050	2.00	1,100	2.25
B	1,500	3.25	1,400	3.50
C	2,100	3.50	2,000	3.75

Solution:

(i) Material Cost Variance = Standard Cost – Actual Cost

Or (SQ x Std. Rate) – (AQ. x Actual Rate)

$$\text{Material A} = (1,050 \times 2) - (1,100 \times 2.25)$$

$$2,100 - 2,475 = - ₹ 375$$

$$\text{Material B} = (1,500 \times 3.25) - (1,400 \times 3.50)$$

$$4,875 - 4,900 = - ₹ 25$$

$$\text{Material C} = (2,100 \times 3.50) - (2,000 \times 3.75)$$

$$7,350 - 7,500 = - ₹ 150$$



Material Cost Variance = ₹ 550 Unfavourable

(ii) **Material Price Variance** = Actual Quantity (Standard Price – Actual Price)

Material A = 1,100 (2.00 – 2.25)
= 1,100 (–0.25) = ₹ 275

Material B = 1,400 (3.25 – 3.50)
= 1,400 (–0.25) = ₹ 350

Material C = 2,000 (3.50 – 3.75)
= 2,000 (–0.25) = ₹ 500

Material Price Variance = ₹ 1,125 Unfavourable

(iii) **Material Usage Variance** = Standard Price (SQ – AQ)

Material A = 2 (1.050 – 1,100)
= 2 (–50) = ₹ 100

Material B = 3.25 (1,500 – 1,400)
= 3.25 (100) = ₹ 325

Material C = 3.50 (2,100 – 2,000)
= 3.50 (100) = ₹ 350

Material Usage Variance = ₹ 575 Favourable

Verification: MCV = MPV + MUV

– ₹ 550 = – ₹ 1,125 + ₹ 575

– ₹ 550 = – ₹ 550

(d) Material Mix Variance: Materials mix variance is that part of material usage variance which arises due to changes in standard and actual composition of mix. Materials mix variance is the difference between standard price of standard mix and standard price of actual mix. The standard price is used in calculating this variance. The variance is calculated under two situations:

- (i) When actual weight of mix is equal to standard weight of mix, and
- (ii) When actual weight of mix is different from the standard mix.

(i) When Actual Weight and Standard Weight of Mix is Equal

In this case the formula for calculating mix variance is :

Standard cost of standard mix – Standard cost of actual mix.

(Standard Price x Standard Quantity) – (Standard Price x Actual Quantity)



Or Standard unit cost (Standard Quantity – Actual Quantity)

In case standard quantity is revised due to shortage of one material, the formula will be equal to Standard unit cost (Revised Standard Quantity – Actual Quantity).

Example 14.3: Calculate material mix variance from the data given as such:

Materials	Standard		Actual	
	Quantity (Units)	Price per unit ,	Quantity (Units)	Price per unit ,
A	50	2.00	60	2.25
B	100	1.20	90	1.75

Due to the shortage of material A, the use of material A was reduced by 10% and that of material B increased by 5%.

Solution:

In this question the standards will be revised. Revised standards will be :

$$\text{Material A} = 50 - 5 (50 \times 10/100) = 45$$

$$\text{Material B} = 100 + 5 (100 \times 5/100) = 105$$

Material Mix Variance = Standard Unit Price (Revised Standard Quantity – AQ)

$$\begin{aligned} \text{Material A} &= 2 (45 - 60) \\ &= 2 (-15) &= -` 30 \end{aligned}$$

$$\begin{aligned} \text{Material B} &= 1.20 (105 - 90) \\ &= 1.20(15) &= ` 18 \end{aligned}$$

$$\text{Material Mix Variance} = -` 12 \text{ Unfavourable}$$

(ii) When Actual Weight and Standard Weight of Mix are Different

When quantities of actual material mix and standard material mix are different, the formula will be:

$$\left\{ \frac{\text{Total Weight of Actual mix}}{\text{Total Weight of Standard mix}} \times \text{Standard cost of Standard} \right\} - (\text{Standard cost of actual mix})$$



In case the standard is revised due to the shortage of one material then revised standard will be used instead of standard, the formula will become:

$$\left[\frac{\text{Total Weight of Actual mix}}{\text{Total Weight of Revised Standard mix}} \times \text{Standard cost of Revised Standard mix} \right] - (\text{Standard cost of Actual Mix})$$

Example 14.4: From the following data calculate various material variances:

Standard			Actual	
Material	Quantity (units)	Price per unit ,	Quantity (units)	Price per unit ,
A	80	8.00	90	7.50
B.	70	3.00	80	4.00

Solution:

(a) Material Cost Variance= Standard Material Cost– Actual Material Cost

(Standard Qty. x Standard Price) – (Actual Qty. x Actual Price)

$$\begin{aligned} \text{Material A} &= (80 \times 8) - (90 \times 7.50) \\ &= 640 - 675 &= - ` 35 \end{aligned}$$

$$\begin{aligned} \text{Material B} &= (70 \times 3) - (80 \times 4.00) \\ &= 210 - 320 &= - ` 110 \end{aligned}$$

$$\text{Material Cost Variance} = ` 145 \text{ Unfavourable}$$

(b) Material Price Variance= Actual Quantity (Standard Price – Actual Price)

$$\begin{aligned} \text{Material A} &= 90 (8.00 - 7.50) \\ &= 90 (0.50) &= + ` 45 \end{aligned}$$

$$\begin{aligned} \text{Material B} &= 80 (3.00 - 4.00) \\ &= 80 (-1.00) &= - ` 80 \end{aligned}$$

$$\text{Material Price Variance} = ` 35 \text{ Unfavourable}$$

(c) Material Usage Variance= Standard Price (Standard Quantity – Actual Quantity)



$$\begin{aligned}\text{Material A} &= 8 (80 - 90) \\ &= 8 (-10) &= -` 80\end{aligned}$$

$$\begin{aligned}\text{Material B} &= 3 (70 - 80) \\ &= 3 (-10) &= -` 30\end{aligned}$$

$$\text{Material Usage Variance} = -` 110 \text{ Unfavourable}$$

(d) Material Mix Variance: In this question standard weight of mix is different from the actual weight of mix, so the formula will be :

$$\frac{\text{Total Weight of Actual Mix}}{\text{Total weight of Standard Mix}} \times \text{Standard cost of Standard Mix}$$

$$\begin{aligned}&\left(\frac{170}{150} \times 80 \times 8 + 70 \times 3 \right) - [90 \times 8 + 80 \times 3] \\ &\left(\frac{170}{150} \times 850 \right) - 960 = 963.3 - 960 = -` 3.3 \text{ Favourable}\end{aligned}$$

(e) Materials Yield Variance. This is the sub-variance of material usage variance. It results from the difference between actual yield and standard yield. It may be defined as that portion of the direct materials usage variance which is due to the standard yield specified and the actual yield obtained. It may arise due to low quality of materials, defective methods of production, carelessness in handling materials, etc.

Material yield variance is calculated with the following formula:

Standard Rate (Actual yield – Standard yield)

Standard Rate is calculated as follows:

$$\text{Std. Rate} = \frac{\text{Standard Cost of Standard mix}}{\text{Net standard output i.e., Gross output – Standard Loss}}$$

There may be a situation where standard mix may be different from the actual mix. In this case the standard is revised in relation to actual mix and the question is solved with the revised standard and not with the original standard. The standard rate will be calculated as follows:

$$\text{Std. Rate} = \frac{\text{Standard Cost of revised Standard mix}}{\text{Net standard output}}$$



In the earlier variances if the standard was more than the actual, the variance was favourable. But, in case of material yield variance the case is different. When actual yield is more than the standard yield, the variance will be favourable.

Example 14.5: The standard mix of a product is as under:

A	60 units at 15 P. per unit	` 9
B	80 units at 20 P. per unit	` 16
C	100 units at 25 P. per unit	` 25
	<u>240</u>	<u>` 50</u>

Ten units of finished product should be obtained from the above mentioned mix. During the month of January, 2016 ten mixes were completed and the consumption was as follows:

A	640 units at 20 P. per unit	` 128
B	960 units at 15 P. per unit	` 144
C	840 units at 30 P. per unit	` 252
	<u>2,440</u>	<u>` 524</u>

The actual output was 90 units.

Calculate various material variances.

Solution:

(i) Material Cost Variance:

The standard has been given for producing 10 units in one mix. Ten mixes have been completed, so standard production will be 100 units.

$$\text{Standard cost for 100 Units} = 50 \times 10 = \text{` } 500$$

Actual yield is 90 units, so standard cost will be adjusted accordingly.

$$\text{Standard cost for actual yield} = 100 \times 90 = \text{` } 450$$

$$\begin{aligned} \text{Material Cost Variance} &= \text{Standard Cost} - \text{Actual Cost} \\ &= 450 - 524 = \text{` } 74 \text{ unfavourable} \end{aligned}$$

(ii) Material Price Variance = Actual Quantity (Standard Price – Actual Price)

$$\begin{aligned} \text{Material A} &= 640 (0.15 - 0.20) \\ &= 640 (-0.05) = \text{` } 32 \text{ unfavourable} \end{aligned}$$

$$\begin{aligned} \text{Material B} &= 960 (0.20 - 0.15) \\ &= 960 (0.05) = \text{` } 48 \text{ favourable} \end{aligned}$$



$$\begin{aligned}\text{Material C} &= 840 (0.25 - 0.30) \\ &= 840 (-0.05) = \text{` 42 unfavourable}\end{aligned}$$

$$\text{Material price Variance (A + B + C)} = \text{` 26 unfavourable}$$

(iii) Material Usage Variance:

The standard quantity will be revised in proportion to actual production. Revised quantity will be :

$$\begin{aligned}\text{A} &= \frac{600}{100} \times 90 = 540 \\ \text{B} &= \frac{800}{100} \times 90 = 720 \\ \text{C} &= \frac{1000}{100} \times 90 = 900\end{aligned}$$

Standard Price (Standard Quantity – Actual Quantity)

$$\begin{aligned}\text{Material A} &: 15 \text{ P. } (540 - 640) \\ &15 (-100) = \text{` 5 unfavourable} \\ \text{Material B} &: 20 \text{ P. } (720 - 960) \\ &20 (-240) = \text{` 48 unfavourable} \\ \text{Material C} &: 25 \text{ P. } (900 - 840) \\ &25 (60) = \text{` 15 favourable}\end{aligned}$$

Material usage Variance = ` 48 unfavourable.

(iv) Material Mix Variance

There is a difference between standard quantity ($240 \times 10 = 2,400$) and actual quantity (2,440), so the standard will be revised first.

Revised standard quantity will be :

$$\begin{aligned}\text{A} &= \frac{60}{240} \times 2,440 = 610 \\ \text{B} &= \frac{80}{240} \times 2,440 = 813 \text{ (approximately)}\end{aligned}$$



$$C = \frac{100}{240} \times 2,440 = 1,017 \text{ (approximately)}$$

Material Mix Variance: Standard Price (Revised Standard Quantity – AQ)

Material A: 15 P. (610 – 640)
 .15 (–30) = ` 4.50 unfavourable

Material B : 20 P. (813 – 960)
 .20 (–147) = ` 29.40 unfavourable

Material C : 25 P. (1017 – 840)
 25 (177) = ` 44.25 favourable

Material Mix Variance = ` 10.35 favourable

(V) Material Yield Variance = Standard Rate (Actual Yield – Standard–Yield)

$$\text{Standard Rate} = \frac{\text{Standard Cost of revised Standard mix}}{\text{Net standard output}}$$

$$= 50/10 = \text{Rs. 5}$$

Standard Yield = $10/240 \times 2440 = 101.67$ units

Yield Variance = $5 (90 - 101.67) = ` 58.35$ unfavourable.

Verification: (i) $MCV = MPV + MUV$ or $-74 = -26 - 48 = -74$

(ii) $MUV = MMV + MYV$ or $-48 = 10.35 - 58.35 = -48$

Example 14.6: KSS Ltd. produces an article by blending two basic raw materials. It operates a standard costing system and the following standards have been set for raw materials:

Materials	Standard Mix	Standard Price per kg.
A	40%	` 4.00
B	60%	` 3.00

The standard loss in processing is 15%. During April, 2016, the company produced, 1,700 kg. of finished output.

The position of stock and purchases for the month of April, 2016 is as under:

Material	Stock on	Stock on	Purchased during
----------	----------	----------	------------------



	1-4-2016	30-4-2016	April, 2016	
	kg	kg	kg	Cost `
A	35	5	800	3,400
B	40	50	1,200	3,000

Calculate the following variances:

(i) Material Price Variance; (ii) Material Usage Variance; (iii) Material Yield Variance; (iv) Material Mix Variance; (v) Total Material Cost Variance.

Solution:

Calculation of Standard Cost of Standard Mix

Material	Standard Quantity of Material required kg.	Standard Price per kg. `	Standard Cost `
A	800	4	3,200
B	<u>1,200</u>	3	<u>3,600</u>
Total	<u>2,000</u>		<u>6,800</u>

Standard Cost

The standard loss is 15% ; so to get 85 finished kgs. 100 kgs. of material are required. Actual finished product is 1,700 kgs; so standard material required will be

$$\left(\frac{1,700 \times 100}{85} \right) = 2,000 \text{ kgs.}$$

Out of 2,000 kgs ; material A will be 800 kgs. (40%) and material B will be 1,200 kgs (60%).

Calculation of Actual Cost of material used

Material A :

Opening Stock	: 35 kgs @ ` 4 (standard rate)	` 140.00
Out of Purchases	: 795 kgs @ ` 4.25 (actual rate)	` 3,378.75
(Purchases – Closing Stock)		<u>` 3518.75</u>

Material B :

Opening Stock:	: 40 kgs @ ` 3 (standard rate)	` 120.00
Out of Purchases	: 1,150 kgs @ 2.50 (actual rate)	` 2,875.00
(Purchase – closing stock)		<u>` 6513.75</u>

**Actual Rate:**

$$\text{Material A} = \frac{\text{₹ } 3400}{830 \text{ kgs}} = \text{₹ } 4.25, \text{ Material B} = \frac{\text{₹ } 3000}{1200 \text{ kgs}} = \text{₹ } 2.50$$

(i) Material Price Variance:

$$\begin{aligned} \text{Material A} &= (830 \text{ kg} \times 4) - (35 \text{ kgs} \times 4 + 795 \text{ kgs} \times 4.25) \\ &= \text{₹ } 3,320 - \text{₹ } 3,518.75 \\ &= \text{₹ } 198.75 \text{ Adverse.} \end{aligned}$$

$$\begin{aligned} \text{Material B} &= (1,190 \text{ kgs} \times 3) - (40 \text{ kgs} \times 3 + 1,150 \text{ kgs} \times 2.50) \\ &= \text{₹ } 3,570 - \text{₹ } 2,995 = \text{₹ } 575 \text{ (Favourable)} \end{aligned}$$

$$\text{Total Material Price Variance} = -198.75 + 575 = \text{₹ } 376.25 \text{ Favourable.}$$

(ii) Material Usage Variance:

Standard Price (Standard Usage – Actual Usage)

$$\text{Material A} : 4 (800 \text{ kgs} - 830 \text{ kgs}) = \text{₹ } 120 \text{ Adverse}$$

$$\text{Material B} : 3 (1,200 \text{ kgs} - 1,190 \text{ kgs}) = \text{₹ } 30 \text{ Favourable}$$

$$\text{Total Material Usage Variance} = -120 + 30 = \text{₹ } 90 \text{ Adverse}$$

(iii) Material Yield Variance

Standard Rate (Actual yield – Standard Yield)

$$= 4 (1,700 \text{ kgs} - 1,717 \text{ kgs})$$

$$= \text{₹ } 68 \text{ Adverse}$$

$$\text{Standard Rate} = \frac{\text{₹ } 6,800}{1,700 \text{ kgs}} = \text{₹ } 4$$

$$\text{Standard Yield} \frac{1,700}{2,020} \times 2,020 = 1,717 \text{ kgs.}$$

(iv) Material Mix Variance:

$$\left(\frac{\text{Total Weight of Actual Mix}}{\text{Total Weight of Standard Mix}} \times \text{Standard Rate} \right)$$

$$-(\text{Standard Cost of Actual Mix})$$

$$\left(\frac{2020}{2000} \times \text{Rs. } 6,800 \right) - (830 \text{ kgs} \times 4 + 1,190 \text{ kgs} \times 4) = \text{₹ } 6868 - \text{₹ } 6,890$$

$$= \text{₹ } 22 \text{ Adverse}$$

(v) Total Material Cost Variance:

$$\text{Standard Cost of Materials} - \text{Actual Cost of Materials}$$



$$₹ 6,800 - ₹ 6,513.75 = ₹ 286.25 \text{ Favourable.}$$

14.9.2 Direct Labour Variances

Labour Variances are discussed as follows:

(a) Labour Cost Variance

Labour Cost Variance or Direct Wage Variance is the difference between the standard direct wages specified for the activity and the actual wages paid. It is the function of labour rate of pay and labour time variance. It arises due to a change in either a wage rate or in time or in both. It is calculated as follows:

Labour Cost Variance = Standard Labour Cost – Actual Labour Cost (Standard time x Standard Wage Rate) – (Actual Time x Actual Wage Rate)

(b) Labour Rate of Pay or Wage Rate Variance

It is that part of labour cost variance which arises due to a change in specified wage rate. Labour rate variance arises due to

- (i) change in basic wage rate or piece-work rate,
- (ii) employing persons of different grades than specified,
- (iii) payment of more overtime than fixed earlier,
- (iv) new workers being paid different rates than the standard rates, and
- (v) different rates being paid to workers employed for seasonal work or excessive work load.

The wage rates are determined by demand and supply conditions of labour conditions in labour market, wage board awards, etc. So, wage rate variance is generally uncontrollable except if it arises due to the development of wrong grade of labour for which production foreman will be responsible. This variance is calculated by the formula: Labour Rate of Pay Variance = Actual time (Standard Rate – Actual Rate)
The variance will be favourable if actual rate is less than the standard rate and it will be unfavourable or adverse if actual rate is more than the standard rate.

(c) Labour Efficiency or Labour Time Variance

It is that part of labour cost variance which arises due to the difference between standard labour hours specified and the actual labour hours spent. It helps in controlling efficiency of workers. The reasons for this variance are:



- (i) lack of proper supervision,
- (ii) defective machinery and equipment,
- (iii) insufficient training and incorrect instructions,
- (iv) increase in labour turnover,
- (v) bad working Conditions,
- (vi) discontentment along workers due to unsatisfactory personnel relations, and
- (vii) use of non-standard material requiring more time to complete work.

Labour efficiency variance is calculated as:

Standard Wage Rate (Standard Time–Actual Time).

If actual time taken for doing a work is more than the specified standard time, the variance will be unfavourable. On the other hand, if actual time taken for a job is less than the standard time, the variance will be favourable.

(d) Idle Time Variance

This variance is the standard cost of actual time paid to workers for which they have not worked due to abnormal reasons. Reasons for idle time may be power failure, defect in machinery, and non supply of materials, etc. Idle time variance should be segregated from the labour efficiency variance otherwise it will show inefficiency on the part of workers though they are not responsible for this. Idle time variance is always adverse and needs investigation for its causes. This variance is calculated as Idle Hours x Standard Rate

(e) Labour Mix or Gang Composition Variance

This variance arises due to change in the actual gang composition than the standard gang composition. This variance shows to the management how much labour cost variance is due to the change in labour composition.

It may be calculated in two ways:

(i) When standard and actual times of the labour mix are same. In this case the variance is calculated as follows:

Labour Mix Variance = Standard Cost of Standard Labour Mix – Standard Cost of Actual Labour Mix.

Due to the non-availability of one grade of labour, there may be a change in standard labour mix, and then revised standard will be used for standard mix. The formula will be: Labour Mix Variance = Standard cost of Revised Standard Labour Mix - Standard Cost of Actual Labour Mix.

**(ii) When standard and actual time of labour mix are different:**

In this case the variance will be calculated as follows:

$$\left[\frac{\text{Total Time of Actual Labour Mix}}{\text{(Standard Cost of Actual Labour Mix)}} \right] \times \text{Standard Cost of Standard Labour Mix}$$

As in the earlier case, if labour composition is revised because of non-availability of one grade of labour then revised standard mix will be used instead of standard mix and the formula will become:

$$\left[\frac{\text{Total Time of Actual Labour Mix}}{\text{Total Time of Revised Standard Labour Mix} - (\text{Standard Cost of Actual Labour Mix})} \right] \times \text{Standard Cost of Revised Standard Labour mix Mix}$$

Example 14.7: The information regarding the composition and the weekly wage rates of labour force engaged on a job scheduled to be completed in 30 weeks:

Category of Workers	Standard		Actual	
	No. of workers	Weekly Wage rate per worker	No. of workers	Weekly Wage rate per worker
Skilled	75	60	70	70
Semi-skilled	45	40	30	50
Unskilled	60	30	80	20

The work was completed in 32 weeks. Calculate various labour variances.

Solution:

(i) **Labour Cost Variance** = Standard Labour Cost – Actual labour Cost

Standard Labour Cost :

Skilled	:	75 x 60 x 30 =	1, 35,000
Semi-skilled	:	45 x 40 x 30 =	54,000
Unskilled	:	60 x 30 x 30 =	54,000
Total			<u>2, 43,000</u>

Actual Labour Cost:

Skilled	:	70 x 70 x 32 =	1, 56,800
Semi Skilled	:	30 x 50 x 32 =	48,200



$$\begin{array}{rcl} \text{Unskilled} & : & 80 \times 20 \times 32 = \underline{51,000} \\ & & \text{Total } \underline{2,56,000} \end{array}$$

Total Labour Cost Variance: $2,43,000 - 2,56,000 = ₹ 13,000$ Adverse

(ii) **Labour Rate Variance** = Actual Time (Standard Rate – Actual Rate)

$$\begin{array}{rcl} \text{Skilled :} & & 2,240 (60 - 70) \\ & & 2,240 (-10) = ₹ 22,400 \text{ Adverse} \end{array}$$

$$\begin{array}{rcl} \text{Semi Skilled :} & & 960 (40 - 50) \\ & & 960 (-10) = ₹ 9,600 \text{ Adverse} \end{array}$$

$$\begin{array}{rcl} \text{Unskilled :} & & 2,560 (30 - 20) \\ & & 2,560 (10) = ₹ 25,600 \text{ Favourable} \end{array}$$

$$\text{Labour Rate Variance} = ₹ 6,400 \text{ Adverse}$$

(iii) **Labour Efficiency Variance** = Standard Rate (Standard Time – Actual Time)

$$\begin{array}{rcl} \text{Skilled :} & & 60(2,250 - 2,240) \\ & & 60(10) = ₹ 600 \text{ Favourable} \end{array}$$

$$\begin{array}{rcl} \text{Semi Skilled :} & & 40(1,350 - 960) \\ & & 40(390) = ₹ 15,600 \text{ Favourable} \end{array}$$

$$\begin{array}{rcl} \text{Unskilled :} & & 30(1,800 - 2,560) \\ & & 30 (-760) = ₹ 22,800 \text{ Adverse.} \end{array}$$

$$\text{Labour Efficiency Variance} = ₹ 6,600 \text{ Adverse}$$

Verification:

Labour Cost Variance = Labour Rate Variance + Labour Efficiency Variance

$$-13,000 = -6,400 - 6,600$$

$$-13,000 = -13,000.$$

Example 14.8: The following data is taken out from the books of a manufacturing company:

Budgeted labour composition for producing 100 articles

20 Men @ ₹ 125 per hour for 25 hours

30 women @ ₹ 1.10 per hour for 30 hours

Actual labour composition for producing 100 articles

25 Men @ ₹ 1.50 per hour for 24 hours

25 Women @ ₹ 1.20 per hour for 25 hours



Calculate: (i) Labour Cost Variance, (ii) Labour Rate Variance, (iii) Labour Efficiency Variance, (iv) Labour Mix Variance.

Solution:

(i) Labour Cost Variance = Standard Labour Cost – Actual Labour cost

$$\text{Men : } (20 \times 25 \times 1.25) - (25 \times 24 \times 1.50)$$

$$625 - 900 = ₹ 275 \text{ Adverse}$$

$$\text{Women: } (30 \times 30 \times 1.10) - (25 \times 25 \times 1.20)$$

$$990 - 750 = ₹ 240 \text{ Favourable}$$

$$\text{Labour Cost Variance} = -275 + 240 = ₹ 35 \text{ Adverse.}$$

(ii) Labour Rate Variance = Actual Time (Standard Rate – Actual Rate)

$$\text{Men : } 600 (1.25 - 1.50)$$

$$600 (-0.25) = ₹ 150.00 \text{ Adverse}$$

$$\text{Women : } 625 (1.10 - 1.20)$$

$$625 (-0.10) = ₹ 62.50 \text{ Adverse}$$

$$\text{Labour Rate Variance} = ₹ 212.50 \text{ Adverse.}$$

(iii) Labour Efficiency Variance = Standard Rate (Standard Time – Actual Time)

$$\text{Men : } 1.25 (500 - 600)$$

$$1.25 (-100) = ₹ 125 \text{ Adverse}$$

$$\text{Women : } 1.10 (900 - 625)$$

$$1.10 (275) = ₹ 302.50 \text{ Favourable}$$

$$\text{Labour Efficiency Variance} = ₹ 177.50 \text{ Favourable}$$

(iv) Labour Mix Variance:

$$\text{Standard time for Men and Women} = 1,400 \text{ hours}$$

$$\text{Actual time for Men and Women} = 1,225 \text{ hours}$$

When standard time of labour mix is different from the actual time of labour mix, the formula for calculating labour mix variance is:

$$\left[\frac{\text{Total Time of Actual Labour Mix}}{\text{Standard Time of Revised Standard Labour mix}} \times \text{Standard Cost of Revised Standard} \right] - \text{Labour Mix - (Standard Cost of Actual Labour Mix)}$$

$$1225/1440 \times (20 \times 25 \times 1.25) + (30 \times 30 \times 1.10) - (25 \times 24 \times 1.25) + (25 \times 25 \times 1.10)$$



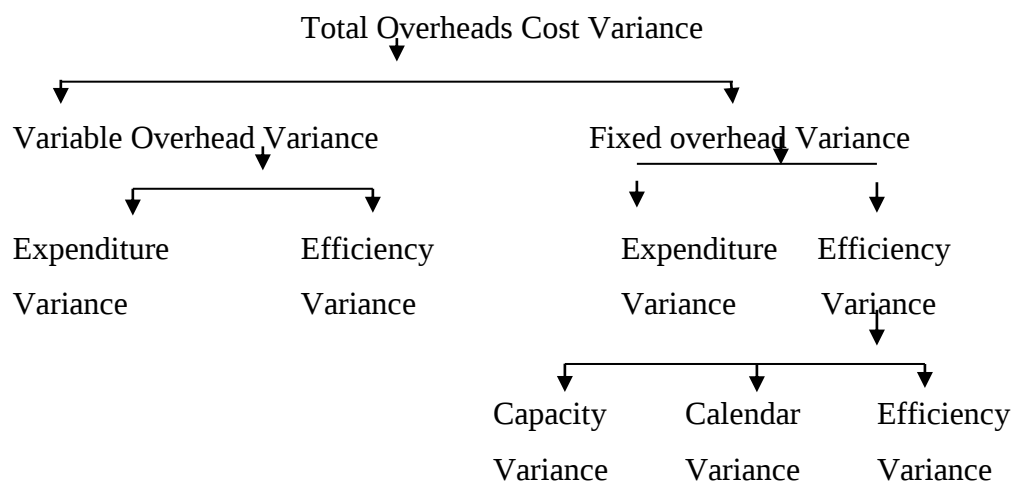
1413.12- 1437.50 = ` 24.38 Adverse.

14.9.3 Overhead Variances

Overhead is the aggregate of indirect material cost, indirect wages (indirect labour cost) and indirect expenses. Thus, overhead costs are indirect costs and are important for the management for the purposes of cost control. Under cost accounting, overhead costs are absorbed by cost units on some suitable basis. Under standard costing, overhead rates are predetermined in terms of either labour hours (per hour) or production units (per unit of output). The formula for the calculation of overhead cost variance is given below:

Overhead Cost Variance = Actual Output x Standard Overhead Rate per unit Actual Overhead Cost or = Standard Hours for Actual Output x Standard Overhead Rate per hour Actual Overhead Cost

An analytical study of the behaviour of overheads in relation to changes in volume of output reveals that there are some items of cost which tend to vary directly with the volume of Output whereas, there are others which remain unaffected by variations in the volume of output achieved or labour hours spent. The former costs represent the variable overhead and the latter fixed overheads. Therefore, overhead cost variances can be classified as:



(i) Variable overhead variance: Variable overheads vary directly with the volume of output and hence, the standard variable overheads vary directly with the volume of output and hence, the standard variable overhead rate remains uniform. Therefore, computation of variable overhead variance, also known as variable overhead cost variance parallels the material and labour cost variances. Thus,



variable overhead cost variance (VOCV) is the difference between the standard variable overhead cost for actual output and the actual variable overhead cost. It can be calculated as follows:

$$\text{VOCV} = (\text{Actual Output} \times \text{Standard Variable Overhead Rate per unit}) - \text{Actual Variable Overheads}$$
or
$$= (\text{Standard Hours for Actual Output} \times \text{Standard Variable Overhead Rate per hour}) - \text{Actual Variable Overheads}.$$

In case information relating to standard hours allowed, for actual output and the actual time (hours) taken is available, variable overhead cost variance can be further analysed into:

- (a) Variable Overhead Expenditure or Spending Variance, and
- (b) Variable Overhead Efficiency Variance.

(a) Variable Overhead Expenditure or Spending Variance: It is the difference between the standard variable overheads for the actual hours and the actual variable overheads incurred and can be calculated as:

$$\text{Variable Overhead Expenditure Variance} = (\text{Actual Hours} \times \text{Standard Variable Overhead Rate per hour}) - \text{Actual Variable Overhead}$$
or
$$= (\text{Actual Hours} (\text{Standard Variable Overhead Rate} - \text{Actual Variable Overhead Rate}))$$

(b) Variable Overhead Efficiency Variance. It represents the difference between the standard hours allowed for actual production and the actual hours taken multiplied with the standard variable overhead rate. Symbolically:

$$\text{Variable Overhead Efficiency Variance} = \text{Standard Variable Overhead Rate} (\text{Standard Hours}) - \text{Actual Hours for Actual Output}.$$

Example 14.9: Calculate variable overhead variances from the following data:

Budgeted Production for January, 2016	3000 units
Budgeted Variable Overhead	` 15,000
Standard Time for One Unit	2 hours
Actual Production for January, 2016	2,500 units
Actual Hours Worked	4500 hours
Actual Variable Overhead	` 13,500.

Solution:

1. Variable Overhead Cost Variance (VOCV) = Actual Output x Standard Variable Overhead Rate –



Actual Variable Overhead

$$= ₹ (2500 \times 5) - 13500$$

$$= ₹ 1000 \text{ (Adverse)}$$

(Standard Variable Overhead Rate = $15000/3000 = ₹ 5$ per unit).

2. Variable Overhead Expenditure or Spending Variance (VOSV)

= (Actual Hours x Standard Variable Overhead Rate) – Actual Variable Overhead

$$= ₹ (4500 \times 2.50) - 13500$$

$$= ₹ 11250 - 13500 = ₹ 2250 \text{ (Adverse)}$$

3. Variable Overhead Efficiency Variance (VOEV) = Standard Variable Overhead Rate (Standard Hours for Actual Output – Actual Hours)

$$= ₹ 2.50 (5000 - 4500)$$

$$= ₹ 1250 \text{ (Favourable)}$$

Verification:

$$VOCV = VOSV + VOEV$$

$$-1000 = -2250 + 1250$$

$$\text{or } -1000 = -1000$$

(ii) Fixed Overheads Variance

This variance is calculated as: Actual Output x Standard Fixed Overheads Rate – Actual Fixed Overheads. (The standard fixed overhead rate is calculated by dividing budgeted fixed overheads by standard output specified). It may be divided into expenditure and volume variances.

(a) Expenditure Variance = Budgeted Fixed Overheads – Actual fixed Overheads

(b) Volume Variance:

This variance shows a variation in overhead recovery due to budgeted production being more or less than the actual production. When actual production is more than the standard production, it will show an over-recovery of fixed overheads and the variance will be favourable. On the other hand, if actual production is less than the standard production it will show an under recovery and the variance will be unfavourable. Volume variance may arise due to change in capacity, variation in efficiency or change in budgeted and actual number of working days. Volume variance is calculated as:

Actual Output x Standard Rate – Budgeted Fixed Overheads

Volume variance is sub-divided into following variances:



(i) Capacity Variance: It is that part of volume variance which arises due to over-utilization or under-utilization of plant and equipment. The working in the factory is more or less than the standard capacity. This variance arises due to idle time caused by strikes, power failure, and non-supply of materials, break down of machinery, absenteeism etc. Capacity variance is calculated as: Standard Rate (Revised Budgeted Units– Budgeted Units) or Standard Rate (Revised Budgeted Hrs- Budget Hrs).

(ii) Calendar Variance: This variance arises due to the difference between actual number of days and the budgeted days. It may arise due to more public holidays announced than anticipated or working for more days because of change in holidays schedule, etc. If actual working days are more than budgeted, the variance will be favourable and it will be unfavourable if actual working days are less than the budgeted number of days. Calendar variance can be expressed as:

Decrease or Increase in number of units produced due to the difference of budgeted and actual days x Standard Rate per unit.

(iii) Efficiency Variance: This is that portion of the volume variance which arises due to increased or reduced output because of more or less efficiency than expected. It signifies deviation of standard quantity from the actual quantity produced. This variance is related to the efficiency variance of labour. Efficiency variance is calculated as: Standard Rate (Actual Quantity – Standard Quantity) or Standard Rate per hour (Standard Hours Produced – Actual Hours). If actual quantity is more than the budgeted quantity, the variance will be favourable and it will be vice versa if actual quantity is less than the budgeted quantity.

Example 14.10: From the following information calculate various overhead variances:

	Budget	Actual
Output in units	12,000	14,000
Number of working days	20	22
Fixed Overheads	36,000	49,000
Variable Overheads	24,000	35,000

There was an increase of 5% in capacity.

Solution:

Standard Fixed Overheads Rate = $36000/12000 = ₹ 3$

Standard Variable Overheads Rate = $24000/12000 = ₹ 2$

(i) Total Overheads Cost Variance= Actual Output x Standard Rate – Actual Overheads



$$14,000 \times (3 + 2) - (49,000 + 35,000) \\ = 70,000 - 84,000 = ₹ 14,000 \text{ Adverse.}$$

(ii) Variable Overheads Variance = Actual output x Standard Variable Overheads Rate – Actual Variable

Overheads

$$14,000 \times 2 - 35,000 = 28,000 - 35,000 = ₹ 7,000 \text{ Adverse.}$$

(iii) Fixed Overheads Variance = Actual Output x Standard Fixed Overheads Rate – Actual Standard Overheads

$$14,000 \times 3 - 49,000 \\ 42,000 - 49,000 = ₹ 7,000 \text{ Adverse.}$$

(iv) Expenditure Variance = Budgeted Fixed Overheads – Actual Fixed Overheads

$$36,000 - 49,000 = ₹ 13,000 \text{ Adverse.}$$

(v) Volume Variance = Actual Output x Standard Rate – Budgeted Fixed Overheads

$$14,000 \times 3 - 36,000 \\ 42,000 - 36,000 = ₹ 6,000 \text{ Favourable.}$$

(vi) Capacity Variance = Standard Rate (Revised Budgeted Units – Budgeted Units)

$$= 3 (12,600 - 12,000) \\ = 3 (600) = ₹ 1,800 \text{ Favourable.}$$

$$(\text{Revised Budgeted Units} = 12,000 + 12,000 \times 5/100 = 12,600)$$

(vii) Calendar Variance:

Change in Number of units by change in actual and standard number of days x Standard Rate. There is an increase of 2 working days than budgeted.

$$\text{Increase in units in 2 days} = 12600/20 \times 2 = 1,260 \text{ units}$$

$$\text{Calendar Variance} = 1,260 \times 3 = ₹ 3,780 \text{ Favourable.}$$

(viii) Efficiency Variance = Standard Rate (Actual Quantity – Standard Quantity)

Standard Quantity	= 12,000
Increase in production due to change in capacity	= 600
Increase in production due to increase in working days	= 1,260
Standard Quantity (Revised)	<u>= 13,860</u>

$$3 (14,000 - 13,860) = ₹ 420 \text{ Favourable.}$$



14.9.4 Sales Variances

A sales value variance exposes the difference between actual sales and budgeted sales. It may arise due to change in sales price, sales volume or sales mix. It is important to study profit variances. It may be classified as follows:

1. Sales Value Variance: Sales Value Variance is the difference between budgeted sales and actual sales. It is calculated as:

Sales Value Variance = Actual Value of Sales – Budgeted Value of Sales.

If actual sales are more than the budgeted sales, the variance will be favourable and on the other hand, the variance will be unfavourable if actual sales are less than the budgeted sales.

2. Sales Price Variance: A sales price variance arises due to the difference between the standard price specified and the actual price charged. It is calculated as:

Sales Price Variance = Actual Quantity (Actual Price– Standard Price).

3. Sales Volume Variance: It is the difference between actual quantity of sales and budgeted quantity of sales. It is calculated as:

Sales Volume Variance = Standard Price (Actual Quantity of Sales – Standard Quantity of Sales).

4. Sales Mix Variance. It is the difference of standard value of revised mix and standard value of actual mix.

Example 14.11: The budget and actual sales for a period in respect of two products are as follows:

	Budgeted			Actual Product		
	Quantity (Units)	Price (₹)	Value (₹)	Quantity (Units)	Price (₹)	Value (₹)
X	600	3	1,800	800	4	3,200
Y	800	4	3,200	600	3	1,800

Calculate Sales Variances.

Solution:

(i) **Sales Value Variance**= Actual Value of Sales – Standard Value of Sales

Total Actual Value: 3,200 + 1,800 = ₹ 5,000

Total Standard Value: 1,800 + 3,200 = ₹ 5,000

Sales Value Variance = 5,000 – 5,000 = Nil

(ii) **Sales Price Variance**= Actual Quantity Sold (Actual Price – Standard Price)



Product A $800 (4 - 3) = ₹ 800$ Favourable

Product B $600(3 - 4) = ₹ 600$ Unfavourable

Sales Price Variance $= ₹ 200$ Favourable

(iii) Sales Volume Variance = Standard Price (Actual Units – Standard Units)

Product A $3 (800 - 600) = ₹ 600$ Favourable

Product B $4(600 - 800) = ₹ 800$ Unfavourable

Sales Volume Variance $= ₹ 200$ Unfavourable.

Verification:

Sales Value Variance = Sales Price Variance + Sales Volume Variance

$0 = 200 + (-200)$

Example 14.12: The information regarding budgeted and actual sales of two products has been given as follows:

	Budgeted		Actual	
	Quantity (units)	Sales Price (₹)	Quantity (units)	Sales Price (₹)
Product	800	10	1,000	12
Product B	1,200	6	1,400	5

Find out variances.

Solution:

(i) Sales Value Variance = Actual Value of Sales – Standard Value of Sales

Actual Value of Sales:

Product A	$1,000 \times 12 =$	12,000
Product B	$1,400 \times 5 =$	7,000
Total		<u>₹ 19,000</u>

Standard Value of Sales:

Product A	$800 \times 10 =$	8,000
Product B	$1,200 \times 6 =$	7,200
Total		₹ 15,200

Sales Value Variance = $19,000 - 15,200 = ₹ 3,800$ Favourable.



(ii) **Sales Price Variance** = Actual Quantity Sold (Actual Price – Standard Price)

$$\begin{aligned}\text{Product A} &= 1,000 (12 - 10) \\ &= 1,000 (2) \\ &= ₹ 2,000 \text{ Favourable}\end{aligned}$$

$$\begin{aligned}\text{Product B} &= 1,400 (5 - 6) \\ &= 1,400 (-1) \\ &= ₹ 1,400 \text{ Unfavourable}\end{aligned}$$

$$\text{Sales Price Variance} = ₹ 600 \text{ Favourable}$$

(iii) **Sales Volume Variance** = Standard Price (Actual Units Sold – Standard Units)

$$\begin{aligned}\text{Product A} &= 10 (1,000 - 800) \\ &= 10(200) \\ &= ₹ 2,000 \text{ Favourable}\end{aligned}$$

$$\begin{aligned}\text{Product B} &= 6 (1,400 - 1,200) \\ &= 6 (200) \\ &= ₹ 1,200 \text{ Favourable}\end{aligned}$$

$$\text{Sales Volume Variance} = ₹ 3,200 \text{ Favourable.}$$

(iv) **Sales Mix Variance:** There is a difference between standard quantity and actual quantity, so the standard will be revised in proportion to actual quantity of sales.

Revised Standard:

$$\text{Product A} = 800/2000 \times 2,400 = 960 \text{ Units.}$$

$$\text{Product B} = 1200/2000 \times 2,400 = 1,440 \text{ Units}$$

Sales Mix Variance = Standard Value of Actual Mix – Standard Value of Revised Standard Mix

Standard Value of Actual Mix:

Product A = 10 x 1,000	= 10,000
Product B = 6 x 1,400	= 8,400
Total	= 18,400

Standard Value of Revised Standard Mix:

Product A = 10 x 960	= ₹ 9,600
Product B = 6 x 1,440	= ₹ 8,640
Total	= ₹ 18,240



Sales Mix Variance = 18,400 – 18,240 = ₹ 160 Favourable.

Verification:

Sales Value Variance = Sales Price Variance + Sales Volume Variance

₹ 3,800 (Fav.) = ₹ 600 (Fav.) + ₹ 3,200 (Fav.)

₹ 3,800 (Fav.) = ₹ 3,00 (Fav.)

14.9.4.1 Profit and Turnover Methods of Calculating Sales Variances

A businessman may be interested more in knowing variations in profits and sales. The profit and turnover methods of calculating sales variances will be useful for this purpose. The variances are analysed as follows:

(a) Total Sales Margin Variance: Actual Profit – Budgeted Profit.

Actual Profit = Actual quantity sold x Actual profit per unit.

Budgeted Profit = Budgeted quantity of Sales x Budgeted profit per unit.

(b) Sales Margin Variance due to Selling Price. This variance arises due to the difference between actual selling price and standard selling price. This variance is calculated as :

Actual Quantity (Actual Price – Standard Price)

(c) Sales Margin Variance due to Volume. This Variance arises due to the difference between actual quantity of sales and budgeted quantity of sales. It is calculated as: Standard Profit per Unit (Actual Quantity of Sales – Standard Quantity of Sales).

(d) Sale Value Variance= Budgeted sales value-Actual sales value.

(e) Sales Volume Variance= Standard selling price per Unit (Actual Quantity of Sales – Standard Quantity of Sales).

(f) Selling Price Variance= Actual Quantity (Budgeted selling Price – Actual Selling Price).

(g) Sales Quantity Variance= Budgeted sale value-Revised standard sales value.

Budgeted sale value=Budgeted quantity x budgeted selling price per Unit

Standard sales value= Actual Quantity x budgeted selling price per Unit

Actual sales value= Actual Quantity x Actual selling price per Unit

Revised Standard sales value= Total Standard sales value x budgeted proportion.

(h) Sales Mix Variance= Revised Standard sales value -Standard sales value

Example 14.13. M. Ltd., has given the following budgeted and actual sales figures:



	Budgeted			Actual		
	Quantity	Sale Price	Value	Quantity	Sales Price	Value
		`	`			
Product A	500	60	30,000	600	65	39,000
Product B	700	40	28,000	650	38	24,700

The cost per unit of product A and B was ` 55 and ` 32 respectively. Compute variances to explain difference between budgeted and actual profit.

Solution:

(i) Total Sales Margin Variance = Actual Profit – Budgeted Profit or Actual Quantity x Actual Profit per Unit – Budgeted Quantity x Budgeted Profit per Unit

Actual Profit per Unit

Actual Sales Price – Actual Cost

Product A = 65 – 55 = ` 10

Product B = 38 – 32 = ` 6

Budgeted Profit per Unit = Budgeted Sale Price – Actual Cost

Product A = 60 – 55 = ` 5

Product B = 40 – 32 = ` 8

Actual Profit

Product A = 600 x 10	= ` 6,000
Product B = 650 x 6	= ` 3,900
	<u> ` 9,900 </u>

Budgeted Profit

Product A: 500 x 5 = ` 2,500

Product B : 700 x 8 = ` 5,600

 ` 8,100

Sales Margin Variance = 9,900 – 8,100 = ` 1,800 Favourable

(ii) Sales Margin Variance due to Selling Price:

Actual Quantity (Actual Price – Standard Price)

Product A = 600 (65 – 60) = ` 3,000 Favourable

Product B = 650 (38 – 40) = ` 1,300 Unfavourable



Sales Margin Variance due to Selling Price= ₹ 1,700 Favourable

(iii) Sales Margin Variance due to Volume:

Standard Profit per unit (Actual Quantity– Standard Quantity)

Product A: 5(600–500) = ₹ 500 Favourable

Product B: 8(650–700) = ₹ 400 Unfavourable

Sales Margin Variance due to Volume

= ₹ 100 Favourable

(iv) Sale Value Variance= Budgeted sales value-Actual sales value.

= (500 x 60 + 700 x 40) - (600 x 65 + 650 x 38) = 5700 (F)

(v) Sales Volume Variance= Standard selling price per Unit (Actual Quantity of Sales – Standard Quantity of Sales).

	Budgeted Qty.	Actual Qty.	Diff.	Budgeted Price (₹)	Variance
Product A	500	600	100 (F)	60	6000 (F)
Product B	700	650	50 (A)	40	<u>2000 (A)</u>
					<u>4000 (A)</u>

(vi) Selling Price Variance= Actual Quantity (Budgeted selling Price – Actual Selling Price).

	B. P (₹)	A. P. (₹)	Diff.	AQ	Variance
Product A	60	65	05 (F)	600	3000 (F)
Product B	40	38	02 (A)	650	<u>1300 (A)</u>
					<u>1700 (F)</u>

(vii) Sales Quantity Variance= Budgeted sale value-Revised standard sales value.

	BSV (₹)	AQ	B. P (₹)	SSV OF AQ	Revised SSV OF AQ	Var.
Product A	30000	600	60	36000	62000 x 30000/58000	
					= (32069)	2069(F)
Product B	28000	650	40	26000	62000 x 28000/58000	
					= (29931)	<u>1931 (F)</u>
						<u>4000 (F)</u>

(viii) Sales Mix Variance= Revised Standard sales value -Standard sales value

AQ	B. P (₹)	SSV OF AQ	Revised SSV OF AQ	Var.
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Product A	600	60	36000	$62000 \times 30000/58000$	
				$= (32069)$	3991 (F)
Product B	650	40	26000	$62000 \times 28000/58000$	
				$= (29931)$	3991 (A)
					<u>Nil</u>

14.10 ACCOUNTING TREATMENT OF VARIANCES

When the financial statements are prepared, they contain actual cost figures there is no variances. But, at the time of implementation of standard costing system, the accounting records contain both standard costs and actual costs, by which we calculate variances. Then the next question arises that how to deal with the variances at the end of the accounting period? Which method should be followed for treating them? The accountants suggest a number of methods for this purpose. Some of them are discussed, which may be adopted for the accounting treatment of variances:

1. Transfer to Profit and Loss Account. Under this method, all variances are transferred to Profit and Loss Account. In this method, the stock of finished goods, work-in-progress and cost of sales are shown at standard cost. It is considered that variances arise due to insufficiency or waste, so these should not become a part of normal cost of production.

2. Allocation of Variances to Finished Stock. In this method, variances are apportioned to finished goods, work-in-progress and cost of sales either on the basis of value of closing balances or on the basis of units. This method has the effect of recording actual costs in the financial statements. The adjustment of variances is made only in the general ledger and not in subsidiary books. The distribution of variances is not made to products. The variances not being actual losses should not be taken to profit and loss account.

3. Transfer of Variances to the Reserve Account. In this method, cost variances are taken to next accounting period as deferred items. The variances whether favourable or adverse are transferred to a reserve account and are offset against future fluctuations. If the variances are favourable then they are taken to the liability side of the balance sheet and they are set off against adverse variances in future. On the other hand, if variances are adverse then these are taken to the balance sheet as a deferred charge and are written off against future favourable variances. This method is not in common use but it may be useful in cases where seasonal fluctuations occur so that favourable and adverse variances may be written off in the course of a business cycle concerning more than one accounting period.



14.11 CHECK YOUR PROGRESS

State whether the following statements are true or false.

1. Calendar variance arises due to differences between actual number of days and the budgeted days.
2. Overhead is the aggregate of direct material cost, indirect wages and indirect expenses.
3. Labour mix variance arises due to change in the actual gang composition than the standard gang composition.
4. Material mix variance is the difference between actual price of standard mix and actual price of actual mix.

14.12 SUMMARY

Firms use the standard costing technique, in combination with an appropriate product costing method, for managing costs. Engineering driven standards for usage of resources are set, which are converted into rupee value by using budgeted process. Therefore, while standard quantities are not revised unless warranted by changes in product specification, design or process of manufacturing, standard prices are revised on yearly basis. A firm may set standards at an ideal level or at the attainable level or at the basic level depending on the objective it desires to achieve through the standard costing system. The key to a standard costing system is variance reporting. Variances between actual and standards are reported for investigation and corrective actions are taken to remove the causes of adverse variances. Favourable variances must also be investigated and standards are reviewed and revised, if necessary. Sales variances are presented either in term of variances in margin or in terms of variances in turnover. Usually, a comprehensive report, which, reconciles the actual profit and the budgeted profit, is presented showing sales and cost variances. Many firms maintain cost ledger within a standard costing system. The three important methods of accounting are: partial plan or output plan, single plan or input plan and dual plan. These methods treat variances differently while basic principles of book-keeping are the same in all three methods.

14.13 KEYWORDS

Standard Cost: It is a predetermined cost which determines in advance each product or service should cost under given circumstances.

Material Cost Variance: It is the difference between the standard costs of materials that should have



been incurred for manufacturing the actual output and the cost of materials that has been actually incurred.

Materials Yield Variance: It is the difference between actually in and standard yield.

Labour Time Variance: It is that part of labour cost variance which arises due to difference between standard labour ours specified and the actual labours our spend.

Capacity Variance: It is that part of volume variance which arises due to under utilization or over utilization of plant and machinery.

14.14 SELF-ASSESSMENT TEST

1. What is meant by Standard Costing? Distinguish between Standard Cost and Estimated Cost?
2. What are the advantages of Standard Costing? Also discuss the limitations of standard costing.
3. Distinguish between Standard Costing and Budgetary Control.
4. Discuss the preliminary steps for establishing a system of standard costing.
5. Write short notes on the following:
 - (a) Current Standard
 - (b) Basic Standard
 - (c) Normal Standard.
6. Describe the managerial uses of variance analysis.
7. Explain in brief the various types of variances used in standard costing.
8. The standard material required for production is 10,500 kgs. A price of ` 2 per kg has been fixed for the materials. The actual quantity of materials used for the product is 11,000 kgs. A sum of ` 24,750 has been paid for the materials.

Calculate: (i) Material Cost Variance, (ii) Material Rate Variance, and (iii) Material Usage Variance.

9. The standard cost of a chemical mixture is :

40% Material A at ` 20 per kg.

60% Material B at ` 30 per kg.

A standard loss of 10% is expected in production. During a period, there is used: 90 kgs Material A at a cost of ` 18 per kg. 110 kgs material B at a cost of ` 34 per kg. The weight produced is 182 kgs. of good product. Calculate (a) Material price variance, (b) Material mix variance, (c) Material yield



variance, and (d) Material cost variance.

10. The standard material cost to produce a tonne of chemical S is :

200 kg of material A @ ` 10 per kg.

300 kg of material B @ ` 5 per kg.

400 kg of material C @ ` 7 per kg.

During the period, 100 tonnes of mixture S were produced from the usage of: 30 tonnes of material A at a cost of ` 9,000 per tonne

40 tonnes of material B at a cost of ` 6,000 per tonne

50 tonnes of material C at a cost of ` 7,000 per tonne.

11. In a factory 100 workers are engaged and the average rate of wage is 50 paise per hour. Standard working hours per week are 40 and the standard performance is 10 units per gang hour. During a week in March, wages paid for 50 workers were at the rate of 50 paise per hour, 10 workers at 70 paise per hour and 40 workers at 40 paise per hour. Actual output was 380 units. The factory did not work for five hours due to breakdown of machinery. Calculate appropriate labour variances.
12. From the following information compute: (i) Fixed Overheads Variance, (ii) Expenditure Variance, (iii) Volume Variance, (iv) Capacity Variance, and (v) Efficiency Variance.

	Budget	Actual
Fixed Overheads for November	` 20,000	20,400
Units of Production in November	10,000	10,400
Standard time for 1 Unit	= 2 hours	
Actual Hours Worked	= 20,100 hours	

13. The standard cost of a product was fixed as follows:

Standard Price of Material ` 5 per kg.

Standard Quantity of Material 6 kg. per unit

Standard Direct labour Cost ` 100 per unit.

Factory Overheads (Standard) ` 2,40,000 p.a.

Normal operating time for the year was estimated at 2400 hours and standard time for production per unit was fixed at 9 machine hours. 15 identical machines were employed by the company in the manufacture of this product. The production during 2017 was 3500 units. All machines were working throughout the year without any breakdown and were fully employed in the manufacturing



operations. 20,000 kg. of material was consumed at a total cost of ₹ 1,20,000. The wage bill amounted to ₹ 4,00,000. There had been no increase in wage rates as compared to the rates prevailed at the time standards were fixed. The actual overhead for the year 2017 was ₹ 2,60,000. Compute the standard and actual cost per unit of the product and the following variances:

- (i) Material Price Variance, (ii) Material Usage Variance,
- (iii) Labour Efficiency Variance, (iv) Overhead Expenditure Variance, and
- (v) Overhead Volume Variance.

14.15 ANSWERS TO CHECK YOUR PROGRESS

- 1. True
- 2. False
- 3. True
- 4. False

14.16 REFERENCES/SUGGESTED READINGS

- 9. Ashish K. Bhattacharya, Principles and Practices of Cost Accounting, New Delhi: Prentice Hall of India Private Limited.
- 10. Charles T. Horngren, Cost Accounting, A Managerial Emphasis, Prentice Hall Inc.
- 11. D. T. Decoster and E. L. Schafer, Management Accounting, New York: John Willey and Sons.
- 12. John G. Blocker and Wettmer W. Keith, Cost Accounting, New Delhi: Tata Mc Grw Publishing Co. Ltd.



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