SEMESTER-IV

ଓଡ଼ିଶା ରାଜ୍ୟ ମୁକ୍ତ ବିଶ୍ୱବିଦ୍ୟାଳୟ, ସମ୍ବଲପୁର
ODISHA STATE OPEN UNIVERSITY, SAMBALPUR

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Odisha State Open University
Sambalpur

BACHELOR OF COMMERCE *(HONOURS)* (BCOM)

BCO-10: MANAGEMENT ACCOUNTING

Credit: 6

Block-1,2,3 & 4

BCO 10: MANAGEMENT ACCOUNTING

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ODISHA STATE OPEN UNIVERSITY, SAMBALPUR

Programme Name: **Bachelor of Commerce (B.Com)** Programme Code: **BCO**

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Reference the above link for **Units 1,4,7,10,13,14,16**

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BCO 10: MANAGEMENT ACCOUNTING

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Basics of Management Accounting

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UNIT 1: INTRODUCTION TO MANAGEMENTACCOUNTING

Structure:

1.1 LEARNING OBJECTIVES

After going through this unit you will be able to:

- Describe the meaning of management accounting
- Describe the scope and functions of management accounting
- Discuss relationship between management, financial and cost accounting
- Explain the limitations of management accounting
- Explain the principles of management accounting

1.2 INTRODUCTION

Management accounting is a branch of financial accounting which is concerned with study of the managerial aspects of accounting. Any system of accounting may be termed as management accounting if it is helpful to management. Any system of accounting which helps the management in its functions of planning, organizing, directing, coordinating and controlling the activities of an organization may be appropriately included within the term management accounting.

In management accounting or managerial accounting, managers use the provisions of accounting information in order to better inform themselves before they decide matters within their organizations, which aids their management and performance of control functions.

Management accounting is the process of preparing reports about business operations that help managers make short-term and long-term decisions. It helps a business pursue its goals by identifying, measuring, analyzing, interpreting and communicating information to managers.

1.3 MEANING AND EVOLUTION OF MANAGEMENT ACCOUNTING

Management Accounting, also known as 'Accounting for Management Or 'Management Oriented Accounting' is made up of two words 'management' and 'accounting'. It refers to the study of the managerial aspect of accounting. In simple words, we can say that any system of accounting which helps the management in planning, organizing, directing and controlling the operations in an undertaking may be regarded as management accounting. It is that system of accounting which helps the management in conducting their business more efficiently, smoothly and economically.

The term 'Management Accounting' is of recent origin. The term was first used by a visiting team of accountants in 1950 under the auspices of Anglo-American Council of Productivity. The study group felt that though financial accounting conveys meaningful information to outsiders, it fails to communicate valuable and varied information to management. The evolution of corporate form of business organization has resulted in large scale production and separation of ownership and management. Thus, with growth in the size and ever growing complexities of the business environment owing to a number of factors like large scale production, use of advanced sophisticated technology, gradual professionalization of management etc. have made the task of management quite complicated. All these factors have necessitated the use of management accounting for planning, decision making, coordinating and controlling the operations in an undertaking. In a small business the owner himself takes responsibilities for decision making as well as their implementation and he does not therefore feel the necessity of setting up a separate communication system. All these information needs are met by the financial accounting system.

But evolution of the corporate form of business organization brought about a sea change in the entire business environment. The introduction of professionalism in management led to division of an organization into too many functional areas necessitating the application of the principles of 'delegation of authority and responsibility'. Modern managers need meaningful and timely data for decision making for which a sound information system or network has to be set up for providing information to the management with a view to helping them in planning and controlling the business efficiently. Thus, the role of accounting has radically changed. The change in the business environment has changed the role of accounting from a mere device of recording to a powerful tool of planning, forecasting, budgeting and budgetary control etc. In the circumstances, management accounting gradually emerged in order to overcome the limitations of financial accounting and cost accounting.

Let us have a look at the various definitions given by different authors and authorities:

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.

The 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".

The Anglo-American Council of Productivity:
"Management Accounting is the presentation of accounting information in such a way as to assist management in the creation of policy and the day-to-day operation of an undertaking".

The Institute of Chartered Accountants of India:
"Such of its techniques and procedures by which accounting mainly seeks to aid the management collectively have come to be known as management accounting".

Robert N Anthony:
"Management Accounting is concerned with accounting information that is useful to management".

J. Batty:
"Management Accounting is the term used to describe the accounting methods, systemsand techniques which, coupled with special knowledge and ability, assist management in its task of maximizing profits or minimizing losses".

Brown and Howard:
"The essential aim of management accounting should be to assist management in decision making and control".

N.K. Bose:
"Management Accounting is accounting for effective management". Different authors and authorities have made an attempt to define 'Management Accounting' from differentangles. It has transpired from almost all the definitions that management accounting deals with presentation of accounting information to the management for the purpose ofassisting them in discharging the functions of management more efficiently. The major thrust of the definitions is on presentation of information rather than on collection. There is a general agreement of opinion amongst all the authors that management accounting is basically concerned with recording, analyzing and presentation of accounting information to management in such a way that it becomes more and more useful to them for planning, organizing, directing and controlling the activities of the organization more efficiently and economically. Management accounting is an important tool to achieve the objectives of a business enterprise and Batty's definition suggests that the user should have special knowledge and ability to handle this important tool.

1.4 SCOPE OF MANAGEMENT ACCOUNTING

Management accounting which is considered to be a new approach to accounting is immensely useful to management as it helps the management in planning, directing and controlling the activities of the organization. Besides the above major areas, management

accounting helps the management in other areas too. Hence, the scope of management accounting is wider than any other branch of accounting and broadly it includes the following which form the scope of management accounting:

- **Financial Accounting:** By nature, financial accounting is based on historical cost as it records only those transactions which have already taken place. Undoubtedly, these records are extremely helpful for planning and control. Planning is of course based on past information or experience, present situation and future expectation while controlling may be done through performance appraisal taking the recorded facts and figures as the basis. So., financial accounting is also included within the scope of management accounting.

- **Cost Accounting:** Cost accounting methods and techniques are applied basically for the purpose of determination of the true cost of production, fixing the selling price, providing a basis to the management for decision making and controlling the cost. Certain cost accounting tools like standard costing, marginal costing, differential costing, responsibility accounting and budgeting etc. are extremely useful to the management for drawing up various plans and programmes, policy formulation and decision making etc. These tools and techniques of cost accounting are frequently used by management accounting and as such management accounting includes within its scope cost accounting also.

- **Budgeting and Forecasting:** Budgeting refers to preparation of a blue print for future course of action and it lays down the targets to be achieved and policies to be followed during a specified future period. The standards and targets are set for various departments with authority delegated to various departmental heads for fulfilling the same. From time to time actual performance is reviewed and compared with the budget figures and in this way the management gets some idea about the working of the various departments. Forecasting involves predicting the future on the basis of a given set of conditions, like estimating the future demands in order to gear up production. Therefore, management accounting embraces within its scope both budgeting and forecasting.

- **Inventory Control:** Inventory refers to stock of raw materials held for the purpose of converting them into finished goods, work in progress representing semi manufactured goods lying in the factory, and the stock of finished goods available for sale. Proper valuation of inventory is essential for the purpose of correct determination of profit. Similarly proper control of inventory is also essential for the purpose of overcoming certain problems associated with over and under stocking of inventories. Management accounting helps the management in deciding many important issues connected with buying, storing and holding of inventories from the point of buying till the point of consumption for the purpose of exercising more effective control over inventories. Hence, inventory control is also included within the scope of management accounting.

- **Reporting to Management:** Reporting to management is an important part of management accounting. The management is posted with information relating to various activities of the organization from time to time which helps the management in controlling

the operations. Management accounting reports are prepared and presented in various forms using graphs, charts, diagrams, tables etc. so thatmanagement can understand and appreciate them in a better way and can initiate control measures on the basis of such reports whenever needed.

- **Financial Analysis and Interpretation:** Financial statements comprising the Trading Account, the Profit & Loss Account, the Balance Sheet, the Cash Flow and Fund Flow Statements etc. are prepared and presented annually by every undertaking. Such statements are usually prepared in a conventional and technical manner according to requirements of law. Everyone cannot understand such technical complicated financial statements. Management accounting undertakes an in-depth analysis of all such statements and interprets them and presents the conclusion drawn to the management in a simple and non-technical manner. It helps the management not only in understanding the significance of the financial information but also in taking appropriate policy decisions. Therefore, financial analysis and interpretation is also included with the scope of management accounting

- **Control Accounting:** Almost all concerns have their own control system. Management accounting helps in developing a control mechanism within the organization in order to enable the management to exercise effective control over the various activities of the organization to ensure optimum, efficient and economic utilization of limited available resources.

- **Internal Check and Internal Audit:** Internal check, internal audit, efficiency audit and management audit are other devices designed to detect weak-spots, inefficiencies, wastages and losses etc. within the organization. Performance evaluation and responsibility accounting will further help the management in fixing the responsibility on those individuals authorized for spending and controlling expenditures in their own department. So, these control devices are also included within the scope of management accounting.

- **Tax Planning and Administration:** Planning and administration of tax matters like computing the correct taxable income or sales and determining the tax liability thereon, submitting the return of income and turnovers etc. and complying with the various statutory obligations, representing the company before the tax authorities etc. are also embodied within the scope of management accounting. Management accountant helps the management with his expert advice on tax matters.

- **Office Administration:** Management accounting helps the management in organizing the office to ensure systematic and quick processing of papers, preserving records and files, using appropriate filing and indexing systems and other labour saving devices etc. Setting up a communication network for free and quick flow of information and reporting to management etc. are also included within the ambit of management accounting.

1.5 FUNCTIONS OF MANAGEMENT ACCOUNTING

Management accounting is essentially a study of the managerial aspect of accounting and as such it is primarily concerned with collecting, classifying, analyzing, interpreting and presenting accounting information to the management for the purpose of enabling the management to conduct and control the activities of the undertaking more efficiently, economically and smoothly. The following are the important functions of management accounting:

- **To help management in planning and forecasting:** Planning involves assessing the future and making provision for it accordingly. Forecasting involves a scientific prediction about the future. Both are essential for achieving the objectives of the organization. Hence the primary function of management accounting is to help the management in planning and forecasting for the future. With tools like budgeting, standard costing, marginal costing, fund flow and cash flow analysis technique, trend ratios and probability analysis etc. it can help the management in determining the targets, standards and goals for the undertaking. These tools of management accounting are extremely useful for planning and forecasting.

- **To help in modifying the crude data:** Function of management accounting includes modifying the crude accounting information with a view to make them more and more useful to management for decision making. Management accounting uses various statistical devices for analyzing, classifying, tabulating and presenting the information in a more clear and concise manner to the management so as to suit their requirement

- **To help in analyzing and interpreting financial statements:** Financial statements like the Profit and Loss account and the Balance Sheet etc. are usually prepared in a technical manner based on certain accounting concepts and conventions and according to requirements of law which everyone cannot understand. Management accounting, with its various tools of financial analysis like comparative statements, common size statements, ratio analysis, trend analysis, cash and fund flow analysis techniques analyses and interprets the financial statements and presents conclusion drawn from such analysis to the management in a very simple and non- technical language so that they can understand and appreciate and utilize the information for policy making.

- **To help in setting up control devices:** An important function of management accounting is to help the management in controlling the activities of the organization in a most effective manner. This is done by means of performance appraisal and setting up of standards for various individuals and departments. The actual performance is reviewed from time to time and compared with the predetermined standards. The deviations are calculated and corrective measures are taken to control the unfavourable trends. Management accounting tools like standard costing and budgetary control are extremely useful for controlling the operations.

- **To help in communicating:** Management accounting helps in setting up a

communication network to communicate internally and externally with the outside world. This is done with the help of reports prepared both for internal and external use.

- **To help in co-coordinating:** Coordination is essential for smooth running of the enterprise. It implies linking up one department with the other department in such a way so that all the departments work collectively in a harmonious and systematic way for achieving the objectives of the organization. Management accountant acts as a coordinator and coordinates the activities of various departments through budgeting. Better coordination results in a high degree of efficiency and higher profitability.

- **To help the management in taking strategic decisions:** There are certain strategic decisions which are extremely difficult for the management to take independently like making or buying, lease or buy, replace or repair, adding a new product, dropping an existing product and diversification etc. Management accounting examines the financial implications of such decisions on the basis of cost –benefit analysis and prepares and presents analytical information of various alternative decisions with a view to enabling the management to choose the best from amongst various alternatives.

- **To disseminate information to various levels of management:** The function of management accounting is to ensure free flow of information to various levels of management for policy formulation and decision making. The top level management frames the broader policies and passes on the same to the lower level management for execution. Management accountant has to supply information to different levels of management so that any further decision needed may be taken within the policy guidelines framed by the top level management.

1.6 RELATIONSHIP BETWEEN COST ACCOUNTING ANDMANAGEMENT ACCOUNTING

The fundamental objectives of cost accounting are (i) ascertainment of correct cost of production, (ii) fixation of selling price, (iii) providing a basis for managerial decision making and (iv) to enable the management to exercise control over cost. Hence , cost accounting helps the management not only in calculating the cost but also in decision making and control and it is mainly for this reason that most of the tools and techniquesof cost accounting are being used by management accounting for helping the management in planning and controlling the operations. In fact management accounting uses the cost information derived from costing records for presenting information to management. However, the scope and functions of management accounting are much wider than that of cost accounting as it has to perform many more functions. Both cost accounting and management accounting are complementary in nature and both are equally essential for running an enterprise more efficiently, smoothly and economically. The mechanism of management accounting can be successfully operated only if there exists a well-established costing system. In spite of some similarity, there are some differences between

cost accounting and management accounting.

The following are the basic differences between cost accounting and management accounting:

1. **Objectives:** The fundamental objectives of cost accounting are ascertainment of cost of production, fixation of selling price, providing a basis for managerial decision making and cost control. But the primary objective of management accounting is to provide information to management for a variety of purposes.

2. **Scope:** The scope of management accounting is wider than that of cost accounting as it includes within its scope financial accounting, cost accounting, financial statement analysis, tax planning and administration, revaluation accounting and reporting to management etc. while cost accounting includes within its scope the aforesaid four functions.

3. **Nature:** In cost accounting both past and present figures are used while management accounting is more concerned with projection of data for the future.

4. **Type of data used:** In cost accounting only those transactions are recorded which can be quantified or expressed in terms of money but management accounting uses both monetary and non-monetary information.

5. **Development:** The great industrial revolution in England contributed a lot in developing cost accounting as financial accounting owing to some inherent limitations failed to satisfy the information needs of the management while management accounting is of recent origin only. It has developed only in the thirty years or so.

6. **Principles and procedures followed:** Cost accounting has certain principles, rules, procedures, methods and techniques of their own which it has to follow strictly at all times and under all circumstances while management accounting is at liberty to adopt and apply any principle, method or technique which better serves the information needs of the management.

1.7 RELATIONSHIP BETWEEN FINANCIAL ACCOUNTING AND MANAGEMENT ACCOUNTING

Financial accounting is basically concerned with recording of day to day transactions of the business in a systematic manner so that the concern is in a position to compile the Profit and Loss account for the accounting period in order to ascertain their profit and loss and a Balance Sheet as at the close of the accounting period to ascertain the financial position of the business. Management accounting collects the financial information from the financial accounting records and other sources like cost accounting records. Such collected information is modified and presented by management accounting to management in such a way so that they become more useful to management for planning and policy making. Thus, management accounting is only an offshoot of financial accounting. Financial

accounting and Management accounting are both complementaryto each other and both are essential for smooth and efficient running of the business. In spite of this close relationship between the financial accounting and Management accounting, there are certain fundamental points of difference between them. The main points of distinction are given as under:

1. Objectives: The basic object of financial accounting is to record the day to day business transaction in a systematic manner in a set of books for ascertaining the profit and loss earned by the business during a given year and also to ascertain the financial position of the business at the close of the accounting period while the primary object of management accounting is to help the management in planning, forecasting, organizing, co-coordinating and controlling the operations.

2. Nature: Financial accounting is based on historical cost. It records only those transactions, which have already occurred. Management accounting on the other hand, is concerned with projection of data for the future. Financial accounting uses actual figures but management accounting uses projected or estimated figures.

3. Scope: The scope of management accounting is wider than that of financial accounting. Management accounting includes within its purview cost accounting, statistical methods, administration of tax matters, management information system and financial statement analysis etc. But financial accounting includes within its scope only two functions, i.e., ascertainment of profitability for the accounting period and financial position of the concern on a definite date.

4. Subject Matter: The function of financial accounting is restricted to ascertainmentof profitability of the business as a whole for a given period and determination of the financial position of the concern on a definite point of time. Management accounting does the same thing but in greater detail throwing light on the results of each department, division or cost center separately.

5. Compulsion: Maintenance of financial accounts is compulsory in case of certain undertakings under various laws but management accounting is not at all compulsory under any law.

6. Type of data used: In financial accounting only those transactions are recorded which are capable of being expressed in terms of money while in management accounting the data dealt with may be both quantitative and qualitative.

7. Precision or degree of accuracy: In financial accounting only actual figures are used in order to ensure a high degree of accuracy and there is no scope for using approximate figures while in management accounting approximate or projected figures are considered more relevant and useful for decision making.

8. Reporting: Financial accounting is usually a matter of legal necessity. Financial accounts are prepared mainly for ascertaining profitability and financial position and its

reports are made available to all outsiders interested in the company. Its report is also kept for internal use by management. Management accounting is installed primarily for the benefit of the management. It is usually confidential in nature and therefore its reports are made available only for the exclusive use of themanagement.

9. Frequency of reporting: Financial accounts are prepared at the end of the accounting period and then only it is reported to all concerned. It is reported only once in a year but management accounting reports are prepared and presented to management as and when required by management. It is reported more frequently.

10. Accounting principles: Financial accounts are maintained strictly according to some accepted accounting principles, concepts and conventions but no such principles are followed in management accounting. Management accountant is at liberty to adopt any method or technique, which may be considered appropriate to suit the needs of the management.

11. Periodicity: According to periodicity concept, financial accounts are prepared for a period of one year. In management accounting, there is no such specified period fixed for preparation of management accounting reports.

12. Publication of Reports: Under the Indian Companies Act, 1956, every registered company is required to furnish a copy of their Profit and Loss Account and BalanceSheet duly audited by the company's auditor to the members of the company before holding the annual general meeting of the company. Copies of annual accounts are also required to be made available to various government departments, financial institutions and banks etc. Therefore, financial accounts are generally published in the form of a printed booklet while management accounting reports are highly confidential in nature and they are meant for internal use of the management. So, there is no question of publication of management accounting reports.

13. Audit: financial accounts are compulsorily required to be audited in case of certain undertaking under various statutes but there is no scope for audit of management accounting records, as they are not based on actual figures.

1.8 LIMITATIONS OF MANAGEMENT ACCOUNTING

Management accounting suffers from the following limitations:

1. It is based on accounting information: Management accounting information is based on data furnished by cost accounting and financial accounting. Therefore, the correctness of the decisions taken by management depends to a great extent on the reliability, authenticity and accuracy of the data on which the decisions are based. If thedata furnished by cost accounting or financial accounting are not reliable then the decisions taken by management accounting on the basis of such data will also be incorrect.

2. Its user may have lack of knowledge: The person using management accounting techniques must be well conversant with a number of allied subjects like financial accounting, cost accounting, economics, law, principles of management and statistical methods. Lack of knowledge of any subject on the part of the user will limit the usefulness of management accounting.

3. Intuitive decisions of the user affect the usefulness: Under management accounting decisions are made on the basis of some scientific analysis supported by facts and figures. Sometimes, management may avoid such a long drawn process of arriving at a decision and adopt a shortcut approach of decision making using their intuition. Such intuitive decisions very often limit the utility of management accounting.

4. It is not a substitute to administration: The tools and techniques of management accounting are applied for presenting information with a view to helping the management in their decision making process. Management has to take decisions on the basis of such information provided by management accounting. So, management accounting can furnish only the information and not the decision. Hence, it is not an alternative to administration.

5. It is highly expensive: The installation of a management accounting system calls for a radical change in the organization structure of the undertaking which is, indeed, a very costly affair beyond the affordable range of small concerns. Only big enterprises can afford to support the cost of using management accounting.

6. It is still in an evolutionary stage: Management accounting has not yet reached its finished form. It is still in an evolutionary stage. Hence, the conclusion drawn from analysis of data using the tools and techniques of management accounting may not always be uniform and correct.

7. It is affected by personal bias of the user: The conclusions drawn from analysis and interpretation of financial data using the tools and techniques of management accounting should be based on objective assessment of facts. The correctness of conclusions drawn depends upon the professional competence of the user. It is also essential that the user should be unbiased. But in practice, personal prejudices and biases of the user very often affect the objectivity of the decisions. Possibility of psychological resistance from different corners: The installation of a management accounting system calls for a radical change in the organization structure of the company with too many rules and regulations required to be framed for its working. Since its installation affects the present set up so there is a strong possibility of resistance from different corners.

1.9 MANAGEMENT ACCOUNTING PRINCIPLES

Management Accounting Principles are largely internal, but certain accepted principles of financial accounting are applicable to management accounting too. All these accepted principles have been developed over the years and they have now taken the form of conventions and form the very basis of the accounting system serving as a guide to sound accounting practices.

The important principles of management accounting are as follows:

- Accounting concerns itself with the recording of business transactions only.
- As far as possible, costs and revenues should be properly matched.
- Profits should be credited on realization basis while losses should be provided In advance.
- The methods, procedures and principles should be consistent.
- The principles of matching costs with revenues should be strictly followed.
- The entire accounting information, past, present or future, in any form should be designed to meet the particular needs of the business.
- The principle of reporting by exceptions should be followed while Presenting information to management.
- The object of control at source accounting be followed. It means that control mechanism should be established at the point where costs are incurred
- The accounting records should be kept as objective as possible.
- A profit cannot be said to be earned unless capital employed is maintained intact inreal terms.
- For measuring the efficiency of business, techniques of measuring the returns on capital should be adopted.
- The management information should be fully integrated.
- Overhead costs should be apportioned to the cost centers and recovered by products.
- The basis for recovery may be either the benefit received for fixed costs or responsibility incurred for variable costs.
- Management accounting must attempt to show whether the resources of the business are most effectively utilized.
- Responsibility should be identified on the basis of the distinction between controllable and non-controllable costs.
- Management accounting should be forward looking.
- The means of recording accounting information and presenting it to the management should be most appropriate.
- Reports and statements should not be used as a substitute for personal contacts With the persons at the higher levels of authority

1.10 LET US SUM UP

In this unit we have discussed the following:

- The meaning and nature of Management accounting
- The functions performed by management accounting
- The scope of management accounting
- That management accounting suffers from certain limitations
- What distinguishes it from cost accounting
- The difference between financial accounting and management accounting, and the principles of management accounting

1.11 KEY WORDS

- Management: Management is a process of planning, decision making, organizing,

leading, motivation and controlling the human resources, financial, physical, and information resources of an organization to reach its goals efficiently and effectively.

- Accounting: Accounting or accountancy is the measurement, processing, and communication of financial and non-financial information about economic entities such as businesses and corporations
- Budgeting: Budgeting is the process of creating a plan to spend your money. This spending plan is called a budget. Creating this spending plan allows you to determine in advance whether you will have enough money to do the things you need to do or would like to do
- Inventory: Inventory or stock is the goods and materials that a business holds for the ultimate goal of resale. Inventory management is a discipline primarily about specifying the shape and placement of stocked goods.
- Internal Audit: Internal Audit is a department or an organization of people within a company that is tasked with providing unbiased, independent reviews of systems, business organizations, and processes.
- Financial Analysis: Financial analysis is the process of evaluating businesses, projects, budgets, and other finance-related transactions to determine their performance and suitability.
- Accounting Principles: Accounting principles are the rules and guidelines that companies must follow when reporting financial data. The Financial Accounting Standards Board (FASB) issues a standardized set of accounting principles in the U.S. referred to as generally accepted accounting principles (GAAP)

1.12 FURTHER READINGS

- Management Accounting: Sharma & Gupta, Kalyani Publishers, Delhi.
- Jain & Narang, Management Accounting, Kalyani Publications
- Management Accounting-M Wilson- Cost Accounting-Jena B,Bal S and Das AHimalaya Publishing House
- Narasimhan M.S. , Management Accounting, Cengage Learning
- Cost & Management Accounting, Taxmann Publications
- Arora, M.N. Cost Accounting – Principles and Practice. Vikas Publishing House, New Delhi.
- Maheshwari, S.N. and S.N. Mittal. Cost Accounting: Theory and Problems. Shri
- Management Accounting: Pillai & Bagavathi, S Chand & Co Ltd. Delhi.
- Management Accounting: Khan & Jain, Tata Mc-Graw Hills Ltd. Delhi.

1.13 MODEL QUESTIONS

Q1: Define Management Accounting. Discuss briefly the functions of management accounting.

Q2: Discuss the scope and limitations of management accounting.

Q3: Bring out clearly the points of distinctions between cost accounting and management accounting.

Q4: State the points of differences between management accounting and financialaccounting.
Q5: Narrate the principles of management accounting.
Q6: What is Internal Check?
Q7: What is Internal Audit?
Q8: What is Control Accounting?
Q9: What do you understand by interpreting financial statements?
Q10: What do you mean by strategic decisions?
Q11: How can management accounting help in planning and forecasting?
Q12: How can management accounting help in coordinating?
Q13: What are the fundamental objectives of cost accounting?
Q14: Mention five points of distinction between cost accounting and management accounting.
Q15: Write two sentences on the scope of cost accounting and managementaccounting?
Q16: Does cost accounting follow some accepted principles and procedures?
Q17: What type of data is being used in management accounting?
Q18: Mention five distinctions between financial accounting and managementaccounting.
Q19: Mention five limitations of management accounting.
Q20: Why is it said that management accounting is not a substitute to administration?
Q21: Is management accounting based on data provided by financial accounting and cost accounting?

UNIT 2: ROLE OF MANAGEMENT ACCOUNTING.

Structure

2.0 LEARNING OBJECTIVES

After the successful study of this Unit, you will be able to:

- Describe the role of management accountant,
- Discuss the functions of management accounting
- Explain the tools and Techniques in management accounting

2.1 ROLE OF MANAGEMENT ACCOUNTING

The role of management accounting can be discussed as follows–

1. **Helping Forecast the Future** –Management accounting helps in answering these critical questions and forecasting the future trends in business. Management accounting plays a crucial role in helping organizations forecast the future by providing essential tools, techniques, and information for effective decision-making. This discipline goes beyond traditional financial accounting, focusing on internal processes and data analysis to assist management in planning and controlling activities. Here are key aspects highlighting the role of management accounting in forecasting the future:

   Budgeting and Planning: One of the primary functions of management accounting is budgeting. By working closely with various departments, management accountants help create detailed budgets that outline expected revenues, expenses, and resource allocations. These budgets serve as a roadmap for the organization, providing a structured plan for achieving financial goals. Through the budgeting process, management accounting aids in forecasting future financial performance based on past trends and anticipated changes.

   Cost Analysis and Cost Control: Management accountants analyze costs associated with different business activities and functions. This involves understanding the cost structure of products or services, identifying cost drivers, and assessing cost behavior. Through cost analysis, management accounting helps in predicting future costs, enabling organizations to make informed decisions on pricing, resource allocation, and cost control measures.

   Variance Analysis: Variance analysis involves comparing actual financial performance against the budgeted or expected performance. Management accountants play a vital role

in conducting variance analysis, identifying the reasons for any deviations, and recommending corrective actions. This process provides valuable insights into the effectiveness of forecasting methods and helps refine future forecasts by incorporating lessons learned from past performance.

Scenario Analysis and Sensitivity Analysis: Management accountants use scenario analysis and sensitivity analysis to assess the impact of different variables and events on future financial outcomes. By modeling various scenarios and testing the sensitivity of key assumptions, organizations can better prepare for different possible futures. This proactive approach helps management make more robust and flexible decisions, considering the uncertainties that may arise. Performance Measurement: Management accountants design and implement performance measurement systems to evaluate the success of organizational strategies and objectives. By establishing key performance indicators (KPIs) and monitoring them regularly, management accounting facilitates the identification of trends and patterns. This historical performance data, in turn, contributes to more accurate forecasting by providing a basis for understanding how certain actions or events have influenced outcomes in the past.

Investment Appraisal: Organizations often face decisions related to capital investments, such as acquiring new assets or expanding operations. Management accounting techniques like net present value (NPV), internal rate of return (IRR), and payback period analysis assist in evaluating the financial viability of such investments. Through investment appraisal, management accountants help forecast the future financial impact of investment decisions and assess their long-term sustainability.

Strategic Planning: Management accounting aligns with strategic planning by providing financial insights that support long-term goals. By integrating financial information with strategic initiatives, management accountants contribute to the development of realistic and achievable strategic plans. These plans, rooted in a solid understanding of financial implications, guide the organization towards a future that aligns with its overall vision.

2. **Helping in make – or – Buy Decisions –** Management accounting plays a crucial role in supporting organizations in various decision-making processes, including make-or-buy decisions. Make-or-buy decisions refer to the choice between producing a product or service in-house (making) or outsourcing it from external suppliers (buying). This decision has significant implications for an Organization's cost structure, operational efficiency, and overall competitiveness. Here how management accounting contributes to make-or-buy decisions:

   Cost Analysis: Management accountants conduct detailed cost analysis to compare the expenses associated with in-house production and outsourcing. This analysis includes both direct and indirect costs, such as raw materials, labor, overhead, and other relevant expenses. Accurate cost information allows decision-makers to evaluate the financial implications of each option.

   Activity-Based Costing (ABC): ABC is a management accounting technique that assigns costs to specific activities based on their consumption of resources. It provides a more accurate understanding of the cost structure associated with different products or services. By applying ABC, management accountants can identify the true costs of in-house

production and external procurement, aiding in a more informed decision-making process.

Capacity Utilization: Management accountants assess the existing production capacity and its utilization. Understanding the organizations current capabilities helps in determining whether it makes sense to produce internally or utilize external suppliers. Effective capacity planning ensures that the chosen option aligns with the organizations production capabilities and avoids underutilization or overcapacity.

Risk Assessment: Make-or-buy decisions involve inherent risks, such as supply chain disruptions, quality issues, or changes in market conditions. Management accountants evaluate these risks and incorporate them into the decision-making process. By quantifying and assessing potential risks, organizations can make more informed decisions that align with their risk tolerance and overall strategic objectives.

Strategic Alignment: Management accounting takes into account the strategic goals and objectives of the organization. The decision to make or buy should align with the overall business strategy. Forexample, if innovation is a key strategic goal, in-house production may be preferred to maintain control over the development process.

Cost-Benefit Analysis: Beyond direct costs, management accounting considers the broader economic factors associated with make-or-buy decisions. This includes qualitative factors such as quality control, lead times, flexibility, and responsiveness to market changes. A comprehensive cost-benefit analysis helps organizations weigh the advantages and disadvantages of each option.

Performance Measurement: Management accountants establish performance metrics to evaluate the success of the chosen option over time. Continuous monitoring of key performance indicators (KPIs) allows organizations to adapt their strategies based on the actual outcomes and make necessary adjustments to improve efficiency and effectiveness.

3. **Forecasting cash Flows –** Forecasting cash flows is a critical function of management accounting, providing organizations with valuable insights into their future financial positions. Cash flow forecasting involves estimating the inflows and outflows of cash over a specific period, typically on a monthly or quarterly basis. This process helps businesses plan and manage their liquidity, make informed financial decisions, and respond effectively to changing circumstances. Here a detailed exploration of the role of management accounting in forecasting cash flows:
   Cash Flow Statement Preparation: Management accountants play a central role in preparing cash flow statements, which provide a detailed breakdown of cash inflows and outflows from operating, investing, and financing activities. By analyzing historical data and incorporating future expectations, management accountants create a comprehensive picture of the organizations cash position.
   Budgeting and Planning: Cash flow forecasting is an integral part of the budgeting and planning process. Management accountants work closely with various departments to develop budgets that align with the organizations strategic goals. By projecting revenues, expenses, and capital expenditures, they contribute to the development of realistic cash flow projections.

Working Capital Management: Forecasting cash flows helps in effective working capital management. Management accountants monitor the cash conversion cycle, which includes the time it takes to convert inventory into cash. By forecasting cash flows, they can identify opportunities to optimize working capital, ensuring that the organization maintains sufficient liquidity to meet its short-term obligations.

Risk Management: Cash flow forecasting allows organizations to identify potential cash shortages or surpluses, enabling proactive risk management. By anticipating periods of tight liquidity, management accountants can develop strategies such as securing additional financing or negotiating favorable payment terms with suppliers. Conversely, during periods of excess cash, they can explore investment opportunities or debt reduction.

Scenario Analysis: Management accountants use cash flow forecasting to conduct scenario analysis, exploring the potential impact of different economic, market, or operational scenarios on cash flows. This helps organizations prepare for uncertainties and develop contingency plans to mitigate the effects of adverse events.

Investment Decision Support: When evaluating potential investments or projects, management accountants incorporate cash flow forecasts into the decision-making process. Assessing the expected cash inflows and outflows associated with a project allows organizations to make informed investment decisions, considering the impact on overall cash liquidity.

Credit Management: Cash flow forecasts are crucial for effective credit management. They help organizations assess their ability to meet debt obligations and provide valuable information to creditors and lenders. Timely and accurate cash flow projections enhance the organizations creditworthiness and can lead to more favorable financing terms.

Performance Evaluation: Management accountants compare actual cash flow results with forecasted figures, facilitating performance evaluation. Variances between projected and actual cash flows are analyzed to understand the reasons behind discrepancies. This feedback loop enables continuous improvement in forecasting accuracy.

Communication with Stakeholders: Accurate cash flow forecasts are essential for transparent communication with stakeholders, including investors, creditors, and management. They provide a clear picture of the organization financial health, aiding in building trust and confidence..

4. **Helping Understand performance variances-** Management accounting plays a crucial role in helping organizations understand performance variances. Performance variances refer to the differences between planned or budgeted outcomes and actual results. Analyzing these variances is essential for evaluating the effectiveness of business operations, identifying areas for improvement, and making informed decisions. Heres a detailed exploration of the role of management accounting in understanding performance variances:

   Budgeting and Standards: Management accountants are involved in the budgeting process, setting standards and expectations for various performance metrics such as revenues, expenses, and production costs. These standards serve as benchmarks against which actual performance is compared. Variances from budgeted figures highlight areas where performance deviates from expectations.

Variance Analysis: Management accountants conduct detailed variance analysis by comparing actual results with budgeted or standard figures. Variances are categorized into favorable and unfavorable, providing insights into the areas where the organization performed better than expected and where it fell short. This analysis is often conducted for revenue, cost of goods sold, operating expenses, and other key performance indicators.

Cost Variance Analysis: Cost variances are a significant aspect of performance analysis. Management accountants break down cost variances into various components, such as price variances and efficiency variances. Price variances assess the impact of changes in input costs, while efficiency variances measure the effectiveness of resource utilization. Understanding these components helps identify the root causes of cost fluctuations.

Operational Performance Metrics: Management accountants develop and monitor key performance indicators (KPIs) that align with the organizations goals. These metrics could include measures of efficiency, productivity, and profitability. Variances in these operational metrics are closely examined to determine the factors influencing overall performance.

Benchmarking: Management accounting facilitates benchmarking, comparing the organizations performance against industry standards or competitors. By understanding variances in performance relative to industry norms, organizations can identify areas where they excel and areas that require improvement to maintain or enhance their competitive position.

Strategic Alignment: Performance variances are assessed in the context of the organizations strategic objectives. Management accountants help align performance metrics with strategic goals, ensuring that variances are interpreted in light of the broader strategic context. This strategic alignment ensures that corrective actions address not only immediate issues but also contribute to long-term strategic success.

Continuous Improvement: Understanding performance variances is a key driver of continuous improvement initiatives. Management accountants work with operational teams to identify the root causes of variances and recommend corrective actions. This iterative process contributes to a culture of continuous improvement, where lessons learned from variances are used to enhance future performance.

Decision Support: Variances provide valuable information for decision-making. Management accountants assist decision-makers by explaining the implications of performance variances and recommending appropriate courses of action. This information is essential for making adjustments to resource allocation, operational processes, or strategic direction.

Communication and Reporting: Management accountants communicate performance variances to various stakeholders through reports and presentations. Clear communication of variances and their causes fosters transparency and accountability within the organization. It also enables stakeholders to make well-informed decisions based on the performance insights provided.

Analysing the Rate of Return – Before embarking on a project that requires heavy investments, the company would need to analyse the expected note of return (RoR). If given two or more investment opportunities, how should the company choose the company break- even on a project? What are the cash flows likely to be? These are all vital questions that can be answered through management accounting..

2.2 ROLE OF MANAGEMENT ACCOUNTANT- THE MANAGEMENT ACCOUNTANT

The management accountant, often referred to as controller, is the managers of accounting in formation used in planning, control and decision making areas. He is responsible for collecting, processing and reporting information that well help managers in their planning, control and decision making areas. He is responsible for collection, processing and reporting information that well help managers in their planning, controlling and decision making activities. He participates in all accounting activities within the organization. The following are the roles of management accountant:

1. **Participating in management process:** The management accountant occupies a pivotal position in the organization. He performs a staff function and also has line authority over the accountant and other employees in his office. He educates executives on the best use of accounting information. He shifts relevant information from the irrelevant and reports the same in a clear form to the management and sometimes to interested external parties,
2. **Maintaining optimum capital structure-** management accountant has a major role to play in raising of funds and their application .He has to decide about maintaining a proper mix of debt and equity.
3. **Investment opportunities** –management accountant can assist either person or a firm regarding the investment in different ways.

He can suggest how, when and where the investment should be made so that an investor or the firm can earn maximum return.

4. **Financial Investigations**- A management accountant can assist the management about the financial in fustigations which is externally

Desired to determine the financial position for the interested parties. Relating to Issue of chares, amalgamation or mergers, or reconstructions etc. to ascertain the reason of decreasing profit or increasing casts, it so happened.

5. **Long – term and short- term planning –** management accountant plays an important role in forecasting future business and economic event for making future plans,i.e short –term and long- term plans ,

Formulation corporate strategy, market study etc.

6. **Decision making –** management accountant provides necessary information to management in taking short-term decision , e.g.

Optimum product nil, make or but, lease or buy, pricing of product,

Discontinuing a product etc. and long- term decisions, e.g, capital budgeting, investment appraisal, project financing. However, the job of management accountant is limited to the adequate of required information, both in a comprehensive as well as reliable form for decision making purposes.

7. **Control-** The management accountant analyses accounts and prepares reports e. g, standard costs, budgets, variance analysis and interpretation, cash and funds flow analysis, management of liquidity, performance evaluation and responsibility accounting etc. for control.

8. **Developing Management Information system** – The routine reports as well as reports for long – term decision making are forwarded to managerial personal at all levels to take corrective action at the right time and also uses these reports for taking important decisions.
9. **Stewardship Accounting**- management accountant designs the frame work of cost and financial accounts and prepares reports for routine financial and operational decision making.
10. **Corporate planning** –He can assist management for long- term planning and advise management regarding amalgamation or mergers or reconstructions including financial planning to see whether effective utilization of resources is made or not . Thus, the role of management accountant cannot be ignored. As such, his services are primarily desired for the efficient management of an undertaking.

Management accounting is a critical function within an organization that plays a pivotal role in decision – making, strategic planning, and overall financial management. It provides role in decision – making, strategic planning, and overall financial management. It provides essential information to the management team, enabling them to make informed choices that can have a significant impact on the organization's performance and success. In this essay, we will delve into the role of management accounting, exploring its functions, tools, and significance in contemporary business environments.

Management accounting, management accounting, often referred to as managerial accounting or cost accounting, is a subset of accounting that focuses on providing financial information to internal users within an organization. While financial accounting primarily caters to external stakeholders, such as investors and regulators, management accounting is directed at helping management make informed decisions. The central role of management accounting can be summarized as follows:

2.3 FUNCTIONS OF MANAGEMENT ACCOUNTING

1. **Performance Measurement and Evaluation:**

One of the primary function of management accounting is to measure and evaluate the performance of various departments, processes, and individuals within an organization. This is typically done by comparing actual results against budgeted or expected results. Key performance indicators (KPLS) are established to track performance in areas like sales, production, cost control, and profitability. This function allows management to identify areas of strength and weakness and make necessary adjustments to achieve the organization's goals.

2. **Planning and Budgeting:**

Management accountants play crucial role in the planning and budgeting process. They work closely with department heads and senior management to prepare budgets, which are detailed financial plans that outline the expected revenues, expenses, and resource allocations for a specific period. Budgets provide a roadmap for the organization, guiding its financial activities and resource allocation. They help in setting financial targets and evaluating performance against these targets.

3. **Cost Analysis and control:**
   Cost analysis and control are fundamental to effective financial management. Management accountants help in identifying and tracking costs associated with different activities, products, or services. They use tools such as cost accounting and activity- based costing to break down costs and understand their drivers. This information is invaluable for controlling costs, optimizing resource utilization, and making pricing decisions.

4. **Decision Support:**
   Management accountants provide critical information for decision – making. They use various techniques, such as cost – benefit analysis, capital budgeting, and risk analysis, to assist management in making choices related to investment, product pricing, expansion, and resource allocation. Through financial modelling and scenario analysis, they help in assessing the potential outcomes of different decisions, aiding management in selecting the best course of action.
5. **Strategic Planning:**
   In today's dynamic business environment, organizations need to be agile and adaptable. Management accountants contribute to the development of strategic plans by providing financial insights and forecasting. They helping evaluating the financial implications of various strategic alternatives and assessing the organization's ability to fund and sustain these strategies.
6. **Performance improvement:**
   Management accountants identify areas for performance improvement based on financial inefficiencies and areas where the organization can enhance its performance. This function is critical for continuous improvement and competitiveness.

2.4 TOOLS AND TECHNIQUES IN MANAGEMENT ACCOUNTING

Management accountants utilize a range of tools and techniques to perform their functions effectively. Some of the key tools and techniques include:

1. **Cost Accounting:**
   Cost accounting is a core tool in management accounting that involves the allocation of costs to products, services, or activities. It helps in determine the cost of production,
   Assessing cost efficiency, and making pricing decisions. Techniques like job costing, process costing, and activity- based costing are employed to allocate costs accurately.
2. **Budgeting and forecasting:**
   Budgets are comprehensive financial plans that set out the organization's goals and provide a financial framework for achieving them. Management accountants create budgets and use them for monitoring and controlling financial activities. Forecasting involves estimating future financial outcomes based on historical data and current trends, helping management make proactive decisions.
3. **Variance Analysis:**
   Variance analysis involves comparing actual performance to budgeted performance to identify discrepancies. When actual results deviate from the budget, management accountants investigate the causes and take corrective actions. This tool aids in cost control and performance improvement.

4. **Activity – Based Costing (ABC):**
   ABC is a method of allocating costs to specific activities or processes based on their consumption of resources. It provides a more accurate understanding of cost drivers and helps in making informed decisions about resource allocation and process improvement.
5. **Cost- volume- profit (CVP) Analysis:**
   CVP analysis assesses the relationship between costs, volume of production or sales, and profitability. It helps in determining the breakeven point and evaluating the impact of different sales or cost scenarios on the organization's financial performance.
6. **Decision Models:**
   Management accountants often use decision models like cost – benefit analysis, capital budgeting, and sensitivity analysis to evaluate different options and their financial implications. These models provide a structured framework for making decisions that align with the organization's goals.
7. **Decision Models:**
   Management accountants often use decision models like cost – benefit analysis, capital budgeting, and sensitivity analysis to evaluate different options and their financial implications. These models provide a structured frame work for making decisions that align with the organization's goals.

2.5 SIGNIFICANCE OF MANAGEMENT ACCOUNTING

The role of management accounting is of paramount importance within organizations for several reasons:

1. **Informed Decision – making:**
   Management accounting provides the information and analysis required for making informed decisions. Whether it's a choice about launching a new product, expanding in to new markets, or cutting costs, management accountants supply the data and insights needed for decision – makers to weigh the pros and cons.
2. **Improved Efficiency:** Through performance measurement and cost analysis, management accounting contributes to identifying areas where the organization can become more efficient. This, in turn, can lead to cost savings and improved profitability.
3. **Financial Planning and control:**
   Management accountants are responsible for creating budgets and financial plans. These tools enable the organization to set clear financial targets and ensure that they are met. Additionally, budget variances alert management to potential issues, allowing for timely corrective actions.
4. **Accountability and performance Evaluation:**
   Management accounting helps establish accountability within the organization. By tracking performance against predetermined targets, it enables the assessment of individual and departmental performance. This information can be used for performance evaluation, incentive programs, and personnel decisions.
5. **Strategic Alignment:**

In an increasingly competitive business landscape, aligning financial goals with strategic objectives is crucial. Management accountants play a key role in ensuring that financial plans and resource allocations support the organization's strategic direction.

6. **Risk Managements:**
   Effective risk management is essential for organizations to protect their assets and maintain stability. Management accountants assess the financial implications of different risks and provide insights inti mitigating strategies.
7. **Regulatory compliance:**
   Management accountants are responsible for ensuring that the organization complies with financial regulations and reporting requirements. This is critical for maintaining the organization's reputation and avoiding legal issues.

2.6 CHALLENGES AND EVOLVING ROLE

The role of management accounting has evolved over the years, influenced by advances in technology, changes in business models, and shifts in the global economy. Several challenges and trends are shaping the future of management accounting:

1. **Technology integration:**
   The advent of advanced analytics, data visualization tools, and artificial intelligence is transforming the way management accountants work.
   These technologies offer the potential to improve data accuracy, automate routine tasks, and provide real – time insights.
2. **Big Data and data analytics:**
   Big data has opened up new possibilities for management accountants. They can now harness vast amounts of data to gain deeper insights into performance, customer behaviour, and market trends. Data analytics is become a fundamental skill in management accounting.
3. **Sustainability and Environmental Accounting:**
   As sustainability becomes a central concern for businesses and stake holders, management accountants are increasingly involved in tracking and reporting on environmental and social impact metrics. This reflects the growing importance of non – financial data in decision – making.
4. **Strategic partnering:**
   Management accountants are transitioning from being mere data providers to strategic partners. They are expected to actively participate in strategic decision – making and provide insights on long – term sustainability and growth.
5. **Globalization and risk management:**
   In an interconnected world, management accountants must navigate the complexities of international business, including currency risk regulatory differences, and global supply chains. Risk management and scenario analysis have become critical functions.

2.7 LET US SUM UP

Management accounting is an indispensable function in modern organizations, serving as the bridge between financial data and informed decision – making. Its multifaceted role encompasses performance measurement, planning, cost control, decision support, and strategic alignment. The tools and techniques used by management accountants, along with their expertise, are vital for maintaining financial health, efficiency, and competitiveness.

As business landscapes evolve, management accounting adapts to new challenges, embracing technology, data analytics, and a broader perspective that encompasses sustainability and strategic partnership.

Its significance in guiding organizations toward their goals remains undiminished, making it an integral part of successful business management. In sum, the role of management accounting is pivotal in the quest for sustainable growth, profitability, and organizational excellence.

2.8 REVIEW QUESTIONS

1. Discuss the role of management accounting in business
2. Explain the role of management Accountant
3. Discuss the functions and significance of management Accounting

UNIT 3: ROLE OF MANAGEMENT ACCOUNTING IN MODERN BUSINESS

Structure:

3.0 LEANING OBJECTIVES

After the successful study of this Unit, you will be able to:

* Discuss the role of management accounting for decision making.

* Explain the Historical Development of management accountings

* Describe the effective performance evaluation, cost control, improving the quality of products or services in business.

3.1. ROLE OF MANAGEMENT ACCOUNTING IN MODERN BUSINESS

Management accounting is required to satisfy thy demands of the current economic environment. There is a need for more innovative and useful management accounting techniques to improve productivity, to reduce costs, to improve quality, to determine accurate product costs to satisfy managerial needs of planning, decision making and control.

1 Activity – based costing (ABC) And Management

The demand for more accurate and relevant management accounting information has led to the development of activity- based costing and activity-based management. Activity – based costing improves the accuracy of assigning costs by first tracing costs to activities and then to products or customers that consume these products. Process value analysis, on the other hand, emphasizes activity analysis- trying to determine why activities are performed and how well they are performed.

The objective is to find ways to perform necessary activities more efficiently and to eliminate those that do not create customer value. Activity – based management is a system – wide, integrated approach that focuses management's attention on activities with the objective of improving customer value and the resulting profit. Activity – based management emphasizes Activity – based costing (ABC) and process value analysis.

2. Increasing customer value

Globalisation has bought a wave of change in the way business operates and creates value for the customer. Now the market is not firm – centric but customer-centric. Customer value is a key focus of every firm. Firms can establish competitive advantage by creating better customer value for the same by reducing cost than that of competitors with value addition to the product.

Customer value is a difference between what a customer receives (customer realization) and what the customer gives up (customer sacrifice). Increasing customer value means increasing customer realization or decreasing customer sacrifice, or both.

Increasing customer value to create a sustainable competitive advantage is achieved through selection of strategies. Cost information plays a critical role in this process. And does through a process called as strategic cost management. Strategic cost management is the use of cost data to develop and identify superior strategies that can produce a sustainable competitive advantage. A focus on customer value ensures that the management accounting system should produce information about both realization and sacrifice.

3. Cross- Functional Perspective –

Management account has a cross- functional perspective and management accountant must understand all functions of business, from manufacturing to marketing and customer service. When customer value is attempted to be increased, all the functions of a business become interrelated; a decision affecting one , affects others as well.

Across –functional perspective helps us to see the forest, not just one or two of the trees. This broader vision allows managers to increase quality, reduce the time required to serve customers and improve efficiency.in this perspective, management accounting helps other business functions through providing useful information and analysis.

4. Total Quality management (TQM)-

Continuous improvement is fundamental for establishing astute of manufacturing excellence. Manufacturing excellence is the key to survival in today, s world – class competitive environment. A philosophy of total quality management, in which manufacturers strive to create an environment that will enable workers to manufacture perfect (zero- defect) products, has replaced the' 'acceptable quality'' attitudes of the past.

Quality cost measurement and reporting are key features of a management accounting system for both manufacturing and service industries. In both cases, the management accounting system should be able to provide both operational and financial information about quality, including information such as the number of defects, quality. Cost reports, quality cost trend reports and quality cost performance reports.

5. Enhancing Efficiency and Reducing Time-

Improving efficiency in business activities is of vital concern in all business enterprises. Both financial and non- financial measures of efficiency are needed. Cost over time and measure of productivity changes can provide important measures of the efficiency of continuous improvement decisions. (Output measured in relation to the input)

Reducing time in all phases of production cycles, selling and distribution should be an important target for all business houses. Firms should deliver products or services quickly by eliminating non- value- added time and time of no- value to the customer. Decrease in non- value added time has correspondence with increase in quality.

Now- a days, the technological innovation has increased for many industries and the life of a particular product can be quite short. Manager's mast be able to respond quickly and decisively to changing market conditions. Information to allow them to accomplish this must be availed from a management accounting information system.

6. Electronic Business (E-Business)-

E- Business is doing business transaction through information is communication technology.

E- Commerce is buying and selling products using information and communication technology. Business firms can expand sales and lower costs through e-business compared to paper- based transactions. Management accounting plays significant role in e- business through providing relevant cost inform action about its benefits, risks and opportunities for example, business managers need to know the cost per electronic transaction versus cost per paper transaction.

Management accounting, often referred to as managerial accounting or cost accounting, plays a crucial role in the success and sustainability of modern businesses. It is a specialized branch of accounting that focuses on providing information and analysis to aid managers in making informed decisions. In a rapidly evolving business environment, management accounting has become more essential than ever before. This essay explores the multifaceted role of management accounting in contemporary business, highlighting its importance in strategic planning, performance evaluation, cost control, and decision – making.

3.2 HISTORICAL PERSPECTIVE OF MANAGEMENT ACCOUNTING

To understand the significance of management accounting in modern business, it is essential to trace its historical evolution. The roots of management accounting can be found in traditional cost accounting methods that date back to the industrial Revolution. During this period, businesses needed to determine and control production costs. As businesses grew and became more complex, the need for financial information and analysis to support decision – making became evident. Consequently, management accounting emerged as a distinct field within accounting, focusing on providing internal information tailored to the needs of management.

Management accounting's historical development can be divided into several phases:

1.Cost Accounting: In the late 19th and early 20th centuries, cost accounting was primarily concerned with allocating and controlling costs in manufacturing processes. This laid the foundation for cost control, an essential aspect of management accounting.

2.Budgeting and planning: The early to mid – 20th century saw the development of budgeting and planning techniques that allowed businesses to Sed financial targets and measure performance against them. Budgets are a vital tool in contemporary management accounting, aiding in planning and control.

3. Decision support: As businesses became more complex, management accountants expanded their role to provide decision support by analysing financial data, offering insights into resource allocation, product profitability, and overall performance. This marked the shift from historical cost- based accounting to forward – looking, strategic management accounting.

4. Modern Management Accounting: Today, management accounting encompasses a wide range of tools and techniques, including activity- based costing, balanced scorecards, and performance measurement frameworks. These advancements are designer to provide managers with more accurate, relevant, and timely information for strategic decision – making.

3.3 STRATEGIC PLANNING AND CONTROL

In the modern business landscape, strategic planning is a critical component of success. Management accounting plays a pivotal role in this process by providing the financial information and analysis required for setting and achieving strategic objectives. Several aspects of management accounting contribute to strategic planning and control:

1. Budgeting and Forecasting: Management accountants use budgeting and forecasting techniques to plan for the future. Budgets set financial targets and allocate resources, while forecasts project expected financial performance based on current trends and assumptions. These tools help organizations anticipate challenges and opportunities.

2. Performance Measurement: performance measurement is an integral part of strategic planning and control. Key performance indicators (KPIS) are established to track progress toward strategic objectives. Management accountants design systems to collect, analysands report on these KPIS, allowing organizations to adapt their strategies as needed.

3. Cost Analysis: Understanding the cost structure of a business is essential for strategic planning. Cost analysis, including activity – based costing (ABC), helps identify areas where cost reduction or efficiency improvements can be made. This information informs decisions related to pricing, product mix, and process improvement.

4. Risk Management: Strategic planning involves assessing and managing risks. Management accountants assist in identifying and quantifying financial risks, helping organizations develop risk mitigation strategies. They can also evaluate the financial impact of various strategic options to inform decision- making.

5. Scenario Analysis: Scenario analysis is a valuable technique in strategic planning. Management accountants create different scenarios to assess the potential outcomes of

various strategic decisions. This aids in risk assessment and helps organizations make more informed choices.

3.4 PERFORMANCE EVALUATION AND MANAGEMENT

Effective performance evaluation is crucial in a competitive business environment. Moder management accounting contributes significantly to this aspect in several ways:

Variance Analysis: Variance analysis involves comparing actual results to budgeted or expected figures. By identifying variances, management accountants enable organizations to investigate and understand the reasons behind deviations from the plan. This analysis helps in taking corrective actions to improve future performance.

2.Balanced Scorecards: The balanced scorecard is a performance measurement frame work that looks beyond financial metrics. It includes non- financial indicators related to customer satisfaction, internal processes, and learning and growth. Management accountants design and implement balanced scorecards to provide a more comprehensive view of an organization's performance.

3. Benchmarking: Benchmarking involves comparing an organization's performance to that of its peers or industry standards. Management accountants use benchmarking data to assess how well the organization is doing in comparison to other and to identify areas for improvement.

4.Continuous improvement: Modern management accounting practices emphasize continuous improvement. Through performance evaluation and feedback, organizations can identify opportunities to enhance efficiency, reduce costs, and increase profitability.

5. Incentive Systems: performance evaluation is often linked to incentive systems, where employers are rewarded based on their individual or team performance. Management accountants play a role in designing and implementing these incentive systems to align employee actions with organizational objectives.

COST CONTROL AND MANAGEMENT

Cost control is a fundamental aspect of management accounting. It involves managing and reducing costs while maintaining or improving the quality of products or services. This is crucial for maintaining profitability and competitiveness. Management accounting contributes to cost control in various ways:

1.Cost Analysis: Management accountants analyse the cost structure of the organization to identify areas where costs can be reduced or eliminated.

They may use techniques like ABC to allocate costs more accurately to products, processes, or activities.

1. Cost Reduction programs: Management accountants develop and oversee cost reduction programs, which involve setting cost reduction targets, implementing cost – cutting measures, and monitoring progress.

2. **Costing Systems:** Management accountants design and implement costing systems that allocate costs to products or services. This helps organizations understand the true cost of producing specific items and make pricing and production decisions accordingly.
3. **Inventory Management:** Efficient inventory management is vital for cost control. Management accountants help organizations optimize inventory levels to reduce carrying costs and improve cash flow.
4. **Cost Control Culture:** Management accountants promote a cost – conscious culture within organizations. This involves education employees about the importance of cost
   Control and encouraging them to identify cost- saving opportunities.

3.5 DECISION SUPPORT AND STRATEGIC MANAGEMENT

One of the most crucial roles of management accounting in modern business is to provide decision support to managers. In an environment characterized by complexity, uncertainty, and rapid change, informed decision – making is essential. Management accountants assist in this process through the following functions:

1. **Cost- volume –** profit (CVP) Analysis: CVP analysis helps in understanding how changes in volume, sales prices, and costs impact profitability. It aids in decision – making related to pricing, sales targets, and product mix.
2. **Capital Budgeting:** Capital budgeting involves evaluating investment opportunities such as new projects or acquisitions. Management accountants use techniques like net present value (NPV), Internal rate of return (IRR), and payback period to assess the financial viability of these investments.
3. **Pricing Decisions:** Management accountants support pricing decisions by analysing the cost structure and considering factors such as market demand, competition, and customer willingness to pay.
4. **Product profitability Analysis:** Organizations often produce a variety of products or offer different services. Management accountants help assess the profitability of each product or service, enabling management to allocate resources effectively.
5. **Risk Analysis:** Decision – making is inherently linked to risk. Management accountants evaluate the financial implications of different decisions and assess the associated risks.

3.6 REVIEW QUESTION

Q 1. Discuss the role of management accounting in modern Business.
Q.2 Describe the historical perspective of management Accounting,
Q 3. Write short notes on:
   (a) Performance evaluation.
   (b) Strategic planning

UNIT-4 TOOLS AND TECHNIQUES OF MANAGEMENT ACCOUNTING

Structure

4.0 LEARNING OBJECTIVES

After studying this unit, you will be able to know

- The steps involved in management accounting process
- The tools of management accounting.
- The techniques used in management accounting.

4.1 INTRODUCTION

Accounting systems are designed to produce financial information about an economic entity to supply to those who need it and to those who have a right to receive it. The ultimate objective of the accounting system is, therefore, the use of information generated through the process of book-keeping, its analysis and interpretation. The branch of accounting that fulfils the informational needs and rights of the internal partiesof the organisation is termed as internal accounting and more commonly as ManagementAccounting.

The Chartered Institute of Management Accountants, London, defines Management Accounting as, "the application of professional knowledge and skill in the preparation of accounting information in such a way as to assist management in the formation of policies and in the planning and control of the operations of the undertaking". The Management Accounting Team of the Anglo-American Council of Productivity has also defined it in a more-or-less similar fashion. For the Council, Management Accounting is the presentation of accounting information in such a way as to assist management in the creation of policy and in the day-to-day operations of an undertaking.

The American Accounting Association (AAA) defines Management Accounting slightly in a different way. According to the Association, "Management Accounting is

the application of appropriate techniques and concepts in processing historical and projected economic data of an entity to assist management in establishing plans for reasonable economic objectives in the making of rational decisions with a view towards achieving these objectives".

Besides the purpose and aim, the AAA's definition stresses two important points. First, Management Accounting uses certain tools and techniques for the purpose of generating accounting information; and, secondly, it does not restrict itself to the use of historical data alone. It also uses the projected future data and non-accounting information in the decision-making process. From the foregoing analysis it is clear that Management Accounting is a process of generating accounting information by applying appropriate accounting tools and techniques and communicating the information so generated to the interested internal parties especially to the management to facilitate policy formulation, planning and controlling the activities of the organisation.

4.2 STEPS IN MANAGEMENT ACCOUNTING PROCESS

The process of accounting information generation involves a sequence of steps. A functional definition given by the International Federation of Accountants vividly lists the various steps involved. A brief description of each of the steps, as stated in the preface of the Statements of International Management Accounting will be in order.

- Identification: The recognition and valuation of business transactions and other economic events for appropriate accounting actions.

- Measurement: The quantification, including estimates, of business transactions or other economic events that have occurred or may occur.

- Accumulation: The disciplined and consistent approach to recording and classifying appropriate business transactions and other economic events.

- Analysis: The determination of the reasons for and the relationship of the reported activity with other economic events and circumstances.

- Preparation and Interpretation: The meaningful coordination of accounting and/or planning data to satisfy the need for information presented in a logical format and, if appropriate, to include the conclusion drawn from that data.

- Communication: The reporting of pertinent information to management and others for internal and external use.

4.3 TOOLS OF MANAGEMENT ACCOUNTING

The various tools used at present in management accounting may be classified into the following groups.

1. Based on Financial Accounting Information

- Analysis of Financial Statements through Ratio Analysis.
- Analysis of Financial Statements through comparative statements, trend,graph and diagram.
- Fund flow and cash flow analysis.
- Return on capital employed techniques.

2. Based on Cost Accounting Information

- Marginal costing (including cost volume profit analysis).
- Direct or incremental Costing and differential costing.
- Standard Costing.
- Analysis of Cost Variances.

3. Based on Mathematics

- Operations Research.
- Linear Programming.
- Network analysis.
- Queuing theory and Games Theory.
- Simulation Theory.

4. Based on Future Information

- Budget and Budgeting.
- Budgetary control: Analysis of Budget Variance / Revenue Variance.
- Business Forecasting.
- Project Appraisal or Evaluation.

5. Miscellaneous Tools

- Managerial Reporting.
- Integrated Auditing.
- Financial Planning.
- Revaluation Accounting.
- Decision making Accounting.
- Management Information System.

4.4 IMPORTANT TECHNIQUES USED IN MANAGEMENTACCOUNTING

Some of the important tools and techniques are briefly explained below.

1. Financial Planning

The main objective of any business organization is maximization of profits. This objective is achieved by making proper or sound financial planning. Hence, financial planning is considered as the best tool for achieving business objectives. In general usage, a financial plan is a comprehensive evaluation of an individual's current pay and future financial state by using current known variables to predict future income, asset values and withdrawal plans

The financial planning process is a logical, six-step procedure:

- Determining your current financial situation.
- Developing financial goals.
- Identifying alternative courses of action.
- Evaluating alternatives.
- Creating and implementing a financial action plan, and.
- Reevaluating and revising the plan.

2. Financial Statement Analysis

Profit and Loss account and Balance Sheet are important financial statements. These statements are analyzed for different periods. This type of analysis helps the management to know the rate of growth of business concern. This analysis is done through comparative financial statements, common size statements and ratio analysis. There are various methods and techniques to perform Financial Statement Analysis. However, the most common methods of financial statement analysis include:

- Horizontal
- Vertical analysis
- Ratio analysis

Horizontal Analysis: A horizontal analysis is a two-year comparison of analysis of the financial statements and its elements. It is also referred to as trend analysis, usually expressed in monetary terms and percentages. This comparison provides analysts with insight into the aspects that could contribute significantly to the financial position or profitability of the organization.

Vertical Analysis: Vertical analysis is a financial statement analysis technique in which every line item of the financial statements is listed as percentages, based on a figure within the financial statement. The line items on the income statement could be stated as percentages of the gross sales, while the line items on the balance sheet could be stated as percentages of the total assets or liabilities. And in case of cash flow, every inflow or outflow of cash could be stated as a percentage of total cash inflows.

Ratio Analysis: A ratio between two quantities is used for representing the relationships between different figures on the profit and loss account, balance sheet, cash flow statement or such other accounting records. It is a form of Financial Statement Analysis, used for obtaining a quick indication of the organization's financial performance in various key areas.

3. Cost Accounting

Cost accounting presents cost data in product wise, process wise, department wise, branch wise and the like. These cost data are compared with predetermined one. This comparison of two costs enables the management to decide the reasons responsible for the difference between these costs.

Types and Classification of Cost Accounting

- Activity Based Costing
- Lean Accounting
- Standard Accounting
- Marginal Costing

4. Fund Flow Analysis

This analysis finds out the movement of funds from one period to another. Moreover, this analysis is very useful to know whether the fund is properly used or not in a year when compared to the previous year. The working capital changes and funds from operation are also found through this analysis.

5. Cash Flow Analysis

The movement of cash from one period to another can be found out through this analysis. Besides, the reasons for cash balance and changes between two periods are also found out. It studies the cash from operation and the movement of cash in a period.

6. Standard Costing

Standard costing is predetermined cost. It provides a yardstick for measuring actual performance. It is used to find the reasons for the deviations if any. Standard cost systems aid in planning operations and gaining insights into the probable impact of managerial decisions on cost levels and profits. Standard costs are used for:

- Establishing budgets.
- Controlling costs, directing and motivating employees, and
- measuringefficiencies.
- Promoting possible cost reduction.
- Simplifying costing procedures and expediting cost reports.
- Assigning costs to materials, work in process, and finished goods inventories.
- Forming the basis for establishing bids and contracts and for setting sales prices

7. Marginal Costing

Marginal costing technique is used to fix the selling price, selection of best sales mix, best use of scarce raw materials or resources, to make or buy decisions, acceptance or rejection of bulk order and foreign order and the like. This is based on the fixed cost, variable cost and contribution. Marginal Costing assists the managers in taking an end number of business decisions, such as replacement of machines, discontinuing a product or service, etc. It also helps the management in ascertaining the appropriate level of activity, through break even analysis, that reflects the impact of increasing or decreasing production level, on the company's overall profit.

8. Budgetary Control

Under Budgetary control techniques, future financial needs are estimated and arranged according to an orderly basis. It is used to control the financial performances of business concern. Business operations are directed in a desired direction. The main objectives of budgetary control are the follows:

- To ensure planning for the future by setting up various budgets, the requirements and expected performance of the enterprise are anticipated.
- To operate various cost centers and departments with efficiency and economy.
- Elimination of wastes and increase in profitability.
- To anticipate capital expenditure for future.
- To centralize the control system.
- Correction of deviations from the established standards.

9. Revaluation Accounting

The fixed assets are revalued as per the revaluation accounting method so that the capital is properly represented with the assets value. It helps to find out the fair return on capital employed.

10. Decision-making Accounting

A business problem can be solved by choosing any one of the best and most profitable alternatives. To select such an alternative, the relevant costs are compared. Thus, accounting information is used to solve the business problem which is arising out of increasing complexity of the nature of business.

11. Management Information System

The free flow communication within the organization is essential for effective functioning of business. Hence, the management can design the system through which every employee of an organization can assess the information and use it for discharging their duties and making quality decisions. Following are the characteristics of an MIS:

- It should be based on long-term planning.
- It should provide a holistic view of the dynamics and the structure of the organization.
- It should work as a complete and comprehensive system covering all interconnecting subsystems within the organization.

- It should be planned in a top-down way, as the decision makers or the management should actively take part and provide clear direction at the development stage of the MIS.
- It should be based on the need of strategic, operational and tactical information of managers of an organization.
- It should also take care of exceptional situations by reporting such situations.
- It should be able to make forecasts and estimates, and generate advanced information, thus providing a competitive advantage. Decision makers can takeactions on the basis of such predictions.
- It should create linkage between all subsystems within the organization, so that the decision makers can take the right decision based on an integrated view.
- It should allow easy flow of information through various sub-systems, thus avoiding redundancy and duplicity of data. It should simplify the operations withas much practicability as possible.
- Although the MIS is an integrated, complete system, it should be made in such a flexible way that it could be easily split into smaller subsystems as and when required.
- A central database is the backbone of a well-built MIS.

12. Management Reporting

The management accountant is preparing the report on the basis of the contents of profit and loss account and balance sheet and submitting the same before the top management. Thus prepared reports disclose the strength and weakness indifferent areas of operating activities and financial activities. These identification are highly useful to management for exercising control and decision-making. The benefits of a good management reporting system are:

- Increase communication
- Improves productivity, accuracy and timeliness
- Improves decision-making and efficiency within organization
- Identifying potential problems early, when you still have time to act on them
- Cost efficiency
- Customer focus

13. Historical Cost Accounting

It means that costs are recorded after being incurred. This is used for comparing with predetermined costs to evaluate performance.

14. Ratio Analysis

Ratio analysis can be defined as the process of ascertaining the financial ratios that are used for indicating the ongoing financial performance of a company using few types ofratios such as liquidity, profitability, activity, debt, market, solvency, efficiency, and coverage ratios and few examples of such ratios are return on equity, current ratio, quick ratio, dividend payout ratio, debt-equity ratio, and so on.

It is used to manage the discharge of its basic functions of forecasting, planning, coordination, communication and control. It paves the way for effective control of business operations by undertaking an appraisal of both the physical and monetary targets.

Ratio analysis is a process used for the calculation of financial ratios or in other words, for the purpose of evaluating the financial wellbeing of a company. The values used for the calculation of financial ratios of a company are extracted from the financial statements of that same company.

15. Decision Making:

Whenever there are different alternatives of doing a particular work, it becomes necessary to select the best out of all alternatives. This requires decision on the part of the management. The management accounting helps the management through the techniques of marginal costing, capital budgeting, differential costing to select the best alternative which will maximise the profits of the business.

16. Revaluation Accounting

The management accountant, through this technique ensures the maintenance and preservation of the capital of the enterprise. It brings into account the impact of changes in the prices on the preparation of the financial statements.

17. Statistical and Graphical Techniques

The management accountant uses various statistical and graphical techniques in order to make the information more meaningful and presentation of the same in such form so that it may help the management in decision-making. The techniques used are Master Chart, Chart of Sales: and Earnings, Investment Chart, Linear Programming, Statistical Quality Control, etc.

4.5 LET US SUM UP

Accounting, over the years, has grown from simple score-keeping and reporting to a subject with an advisory capacity to aid in a complex and continuous process of decision-making in large complex organizations. Today accountants have come to occupy corporate executive positions. Accounting knowledge and information processing are considered essential for effective and efficient performance of selecting the best course of action from among the available alternatives. As a developing subject with a dynamic nature it has come a long way from the mere use of traditional techniques and tools. At present, accounting is able to provide a more strategic business orientation. Management Accounting, if adopted and practiced with all its features, would no doubt bring about better control and better performance in any kind of organisation. Cooperatives, especially in the developing countries, have so much to gain by adopting the Management Accounting tools and techniques in their day-to-day operations.

4.6 KEYWORDS

- Financial Information: Financial information is data about the monetary transactions of a person or business. This information is used to derive estimates ofcredit risk by creditors and lenders.
- Internal Control: Internal control, as defined by accounting and auditing, is a process for assuring of an organization's objectives in operational effectiveness andefficiency, reliable financial reporting, and compliance with laws, regulations and policies.
- Bookkeeping: Bookkeeping is the recording, on a day-to-day basis, of the financial transactions and information pertaining to a business. It ensures that records of the individual financial transactions are correct, up-to-date and comprehensive.
- CIMA: CIMA is the world's largest professional body of management accountants. We offer the most relevant finance qualification for business.
- ROI: Return on Investment (ROI) is a performance measure used to evaluate the efficiency of an investment or compare the efficiency of a number of different investments.
- Financial Analysis: Financial analysis refers to an assessment of the viability, stability, and profitability of a business, sub-business or project.
- Revaluation Account: A Revaluation Account is prepared in order to ascertain netgain or loss on revaluation of assets and liabilities and bringing unrecorded items into books.
- Quality Control: Quality control (QC) is a process through which a business seeksto ensure that product quality is maintained or improved.

4.7 FURTHER READINGS

- Jain & Narang, Management Accounting, Kalyani Publications
- Management Accounting-M Wilson- Cost Accounting-Jena B,Bal S and DasAHimalaya Publishing House
- Narasimhan M.S. , Management Accounting, Cengage Learning
- Cost & Management Accounting, Taxmann Publications
- Arora, M.N. Cost Accounting – Principles and Practice. Vikas Publishing House, New Delhi.
- Maheshwari, S.N. and S.N. Mittal. Cost Accounting: Theory and Problems. ShriMahavir Book Depot, New Delhi.
- Lal, Jawahar. Advanced Management Accounting Text and Cases. S. Chand &Co.New Delhi.
- Khan, M.Y. and P.K. Jain. Management Accounting. Tata Mc Graw Hill, Publishing

4.8 MODEL QUESTIONS

Q1: Briefly describe the steps of Management Accounting.
Q2: What are the tools of Management Accounting?
Q3: Explain the important techniques used in management accounting.

Q4: What is financial statement analysis? State the difference between Horizontal Analysis & Vertical Analysis.

Q5: What is a Management Information System? What are the important characteristics of MIS?

Q6: Write short notes on the followings:

a) Revaluation Accounting
b) Management Reporting
c) Standard Costing
d) Marginal Costing

Block-2

Ratio Analysis and Cash Flow Statement

Unit-5: Ratio Analysis: Meaning and Significance

Unit-6: Classification of Ratios

Unit-7: Cash Flow Statements

Unit-8: Funds Flow Statements

UNIT 5: RATIO ANALYSIS: MEANING AND SIGNIFICANCE

Structure

5.0 LEARNING OBJECTIVE

After successful study of this unit, you will be able to :

- Describe the meaning of ratio analysis and also different approaches to ratio analysis.
- Discuss about the significance of ratio analysis.
- Discuss the importance and the basis of interpretation.
- Know the limitations of Management Accounting.

5.1 MEANING OF RATIO ANALYSIS

Ratio is an expression of the quantitative relationship between two numbers. It can be expressed in the form of fraction, number of times, percentage or in proportion. Ratio Analysis is very important tool of financial analysis. It is a technique of analysis and interpretation of Income statement i.e. trading and profit and loss A/C statement and position statement, i.e. Balance sheet. It is the process of establishing and interpreting various ratios for helping in making certain decisions. It is not an end in itself and is only a means of better understanding of financial strengths and weaknesses of a firm. A ratio will be meaningful only when it is analysed and interpreted.

Steps in Ratio Analysis

1. Selection of relevant data from the financial statements depending upon the objective of the analysis.
2. Computation of appropriate ratios from the above data.
3. Comparison of the calculated ratios with the ratios of the same firm in the past or the ratios developed from projected financial statements or the ratios of some other firms or the comparison with ratios of the industry to which the firm belongs.

5.2 APPROACHES OF RATIO ANALYSIS

1. Time-Series Analysis: In this analysis the performance of a firm is evaluated. Over a period of time. Present performance of a firm with the performance of the same firm over last few years are compared to know the trend in progress of the firm, about the direction

of progress of the firm. The information generated by the Time-Series analysis can also helpthe firm to assess whether the firm is approaching long term goals or not. The feme-series Analysis can be extended to cover projected financial statements. This analysis looks for

(i) Important trends in financial performance

(ii) Shift in trend over the years, and

(iii) Significant deviations of any from other set of data.

In this case ratio of 5 to 10 years in compared at a time to find out the trend.

2. Cross-Section Analysis :- Under this analysis ratios of a firm to compare with the ratio or ratios of some other selected firm in the same industry at the same point of time. this analysis helps the analyst to find out as to how a particular firm has performed in relation to its competitors with the performance of the leader in the industry in order to cover the major operational efficiencies. In this type of analysis, the comparison with a standard helps to find out the quantum as well as the direction of deviation from the standard.

It is necessary to look for the large deviations on either side of the standard could mean a major concern for attention. This analysis is easy to be undertaken as most of the data required for this may be available in financial statements of the firm.

3. Combined analysis – It is the combination of both cross section and time series analysis. Under this analysis a trend of ratio of a firm compared with the trends of a firm compared with the trends of the ratios of a firm compared with the trends of the ratios of the standard firm can give good results. For example the ratio of operating express to Net Sales for a firm, may be higher than the industry average, however, over the years it has be declining for the firm, whereas the industry average has not shown any significant changes.

5.3 INTERPRETATION OF RATIOS

Ratios are the means of financial analysis. To make the ratio useful, they have to be interpreted. Interpretation of ratio needs skill, intelligence and foresightedness. The interpretation can be made in the following ways:

(i) Interpretation on the basis of single ratio :

No meaningful conclusion can be drawn by one single ratio. However there are few ratios (i.e. current ratio, 2:1, quick ratio 1:1, absolute quick ratio 50%, can be considered in isolation such ratios are very few where rule of thumb may be applied and which alone are capable of some meaningful interpretation.

(ii) Interpretation on the Basis of group of Related Ratios:

There is large number of ratios which are well interpreted when supported by certain other related ratios. For example current ratios may be supported by liquidity ratios to draw

more dependable conclusion. Similarly ratios of profit of sales can be well interpreted when it is considered with reference to new worth turnover ratio.

(iii) Interpretation on the basis of Historical Trends:

This is a most popular method of appraising the performance of the firm. Under this method a firms performance is compared with its own past over a period of time and trend in noted on the basis of figures of the same ration of past few years. While interpreting ratios from comparison over a time, the analyst must pay attention to the changes in the firm's policies, accounting procedures, and also price level changes.

(iv) Interpretation on the basis of interfirm comparison:

Ratios of one firm can also be compared with ratios of other firms in the same industry. But while making such comparison, the analyst has to be very careful regarding the different of accounting methods, policies and procedures adopted by different firms.

(v) Interpretation on the basis of projected Ratios:

Ratios for the future can be projected and these may be taken as standard for comparison with ratios calculated on the basis of actual performance. This method is not used usually in practice.

(vi) Interpretation on the basis of similar firms:

If we compare the firm with similar firms in other industries, we often gain a better insight into the financial condition.

(vii) Interpretation on the Basis of common Sense:

The analyst may also use his subject judgement and reasons for the purpose. For example, a 20% return on investment may be considered reasonable as a norm.

5.4 SIGNIFICANCE OF RATIO ANALYSIS

Persons interested in the analysis of the financial statements are: -

(i) Owners or investors

(ii) Creditors, and

(iii) Financial executives

The significance of these ratios varies for these three groups as their purpose differs widely. The investors are mainly concerned with the earning capacity of the company where as the creditors including the bankers and financial institutions are interested in knowing the ability of enterprise to meet its financial obligations timely. The financial executives are concerned with evolving analytical tools that will measure and compare costs, efficiency, liquidity and profitability with a view to make intelligent decisions. Hence, the use, significance, importance of ratio analysis can be highlighted as below.

(1) Helpful to management: the ratio analysis proves to be of significant value to the management in the process of the discharge of its elementary functions such as planning, co-ordination, communication and control. In short, it paves the way for effective control of the enterprisein the matter of achieving physical and monetary targets.

(2) Helpful in comparative study: Ratio analysis is also help in comparative study. It helps to make an interfirm comparison either between different departments of a firm or between two firms employed in the identical types of business or between the same firm on two different dates.

(3) Helpful in Trend Analysis: The ratio analysis facilitates a firm to consider the time dimension into account. i.e. whether the financial position of a firm is showing any improvement or deterioration over years. This is affected through the use of trend analysis. With the help of financial analysis one can ascertain whether the trend is favourable or unfavourable.

(4) Helpful in Communication: with the help of ratio analysis, it is possible to know the changes that had taken place in the business between two periods. In this way the weakness of business concern can easily be found out. In brief, ratios are helpful in communication of information.

(5) Helpful in Determining the Standards: Keeping in mind the old ratio and present operating efficiency, the standard can be fixed. In this way the ratio analysis is considered to be essential part of budgetary control and standard costing.

(6) Helpful in effective Control: On the basis of ratios, by establishing standards the effective control can exercised upon the activities of the firm. On the comparison of standard ratios with actual ratios, adverse financial position can be found out and accordingly corrective measures can be taken.

(7) Helpful in theEvaluation of Efficiency: With the help of ratio analysis, comparison of current year figures can be made with those of previous years. Similarly comparison of profitability, effectiveness and financial soundness can be made between business concerns. In this way, the use of ratio analysis can be made formeasuring the effectiveness of business concern.

(8) Helpful in Evaluation of financial Soundness: With the help of liquidity, solvency, profitability and capital gearing ratios. detailed information can be gathered which are related to financial soundness of any organisation.

(9) Helpful for interested parties in the firm: Through ratio analysis the internal and external parties interested in the firm also get benefited. The workers of the firm may use the information presented in the financial statements as basis for requesting increase in wages and salaries. By studying profitable ratios, investors can take decisions whether to invest or not.

5.5 LIMITATIONS OF MANAGEMENT ACCOUNTING

Management accounting suffers from certain limitations which limits its effectiveness.The limitations are as follows:

1. **Management accounting is only a tool:** Management accounting can not replace the management. It is only an advisor to the management. The decision regarding implementing his advice is to be taken by the management.
2. **Wide Scope:** Management accounting considers both monetary and as well as non-monetary factors. These factors brings inexactness and subjectivity in the conclusion obtained through it.
3. **Limitations of Basic records:** Management accounting derives its information from financial accounting, cost accounting and other records. The strength and weakness of its depends upon the strength and weakness of these basic record.
4. Persistent Efforts: The conclusions drown by the management account are not executed automatically. He has to convince people at all levels because people by nature are resistant to change.
5. **Opposition to Change:** Management accounting demands a break away from traditional accounting practices. It calls for a re-arrangement of the personnel and their activities which is generally not liked by the people involved.
6. **Top-heavy Structure:** The installation of management accounting system requires heavy costs on account of an elaborate organisation and humorous rules and regulations. It can, therefore be adopted by big concerns.

5.6 REVIEW QUESTIONS

1. "Ratio analysis is an important tool for judgement of the health of any organisation" Discuss.

2. What is ratio analysis? Discuss the significance of ratio analysis?

3. Briefly discuss different basis on which ratios are interpreted.

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UNIT 6: CLASSIFICATION OF RATIO

Structure:

6.0 LEARNING OBJECTION:

After the successful study of this unit. You should be able to:

- Known The Short- term financial Position of a concern by ascertaining current ratios.
- Explain long-term solvency position of on undertaking.
- Describe the profitability position by ascertaining profitability ratios.
- Explain the overall performance of a business undertaking through ratio analysis.

6.1 CLASSIFICATION OF RATIO

The short term creditors of company, like a company, like suppliers of goods on credit and commercial banks providing short-term loans, are primarily interested in knowing the company's ability to meet its current or short term obligations as now as and when these become due.

The object of liquidity analysis is to examine the firm's ability to meet its current obligation out of short-term resources. However, a very high degree of liquidity is not desirable because it implies that funds are idle as they earn very little. It is not good from profitability point of view. Hence, a proper balance between the two contradictory requirements i.e. liquidity and profitability is required for efficient financial management. It becomes, therefore, necessary to determine the degree of liquidity of the firm.

The ratios which indicate the liquidity of a firm are known as Liquidity Ratio. Following are ratios calculated to measure the liquidity of a firm

1. Current Ratio
2. Quick Ratio
3. Absolute Liquid Ratio

6.2 CURRENT RATIO

Current Ratio is the most common and widely used ratio for measuring liquidity. Being related to working capital analysis, it is also called the working Capital Ratio. This

ratio indicates the relationship between total current assets and total current liabilities of a firm. This is calculated by dividing current assets by current liabilities.

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

Current assets (will be converted in to cash within one year)	Current liabilities (payable within one year)
Example: Cash in hand, Cash at bank, Debtors, prepaid expenses, Short term deposits, Short term investments, Bills receivable, Money at call and short notice, Stock of finished goods, Stock of work in progress, Stock of raw materials.	Example : Bills payable, Income tax payable, Creditors, Outstanding expenses, Bank overdraft, Provision for taxation, Interest due on fixed liabilities, Reserve for unbilled expenses, Instalment payable on long – term loans.

Interpretation:

1. Current Ratio is a good measure of liquidity. It indicates the rupees of current assets available for each rupee of current liability.
2. Higher the current ratio, the larger the amount of rupee available per rupee of current liability, the more the firm's ability to meet current obligation and greater the safety of funds of short-term creditors.
3. But too high current ratio may be good from creditors point of view, but it can be good from view of owners. Too high current ratio shows weak investment policy, excessive stock etc. Such a situation cannot be good for the profitability of the business.
4. On the other hand , low current ratio shows shortage of working capital in the business and it may endanger the survival of the firm. Hence, the current ratio in business should be appropriate.
5. A ratio of 2:1 (two times current assets to current liability) is considered satisfactory as a rule of thumb.
6. In inter-firm comparison, the firm with the higher current ratio has better liquidity or short term solvency.

Quick or Acid Test Ratio or Liquid Ratio

Quick Ratio may be defined as the relationship between quick/liquid assets and current or liquid liabilities. An asset is said to be liquid if it can be converted into cash within a short period without loss of value. In that sense cash in hand and cash at bank are the most liquid assets. The other liquid assets include bills receivable, sundry debtors, marketable securities and short term or temporary investments .Prepaid expenses and Inventories cannot be termed as liquid asset because they cannot be converted into cash without loss of value. A ratio of **1:1 is considered as satisfactory Quick Ratio.**

The ratio is used as a compliment of current ratio. This ratio is calculated for assessing the capacity of the firm to make immediate payment of its liabilities. This ratio discloses the relationship between liquid assets and current liabilities.

Quick/Acid Test/ Liquid Ratio= Quick Assets or Liquid Assets
Current Liability

Quick Assets/ Liquid assets= Current assets-Stock-Prepaid expenses

Absolute Liquidity Ratio

It is more rigorous test of liquidity of a firm. It is calculated by diving cash and marketable securities (term as super-quick current assets) by quick or liquid liabilities. It a calculated as follows :

Absolute Liquid Ratio= Absolute Liquid Assets
Current Liabilities

Absolute liquid assets= Cash in hand , cash at bank and short term highly liquid marketable securities. The acceptable norm for the ratio is 50% or 0.5:1.

Illustration: (1) From the following information regarding current assets and current liabilities of Sun Ltd. Comment upon the liquidity of the concern.

Current Liabilities	Rs.	Current Assets	Rs.
Creditors	27,000	Cash	42,000
Bills Payable	12,000	Debtor	20,000
Outstanding expenses	5,000	Bills receivable	15,000
Provision for tax	18,000	Stock	35,000
Bank overdraft	10,000	Investment in Government securities	24,000
		Prepaid expenses	10,000
		Interest receivable	1,000
Total	72,000	Total	1,47,000

Solution:

Current Ratio= Current Assets = 1,47,000 = 2.04:1
Current Liability 72,000

Quick Ratio= Quick Assets = 1,02,000 = 1.4:1
Current Liability 72,000

Absolute Liquid Ratio = Absolute Liquid Assets = 66,000 =0.92:1
Current Liability 72,000

Working Note :

Quick Assets= Current Assets-Stock-Prepaid Expenses = 1,47,000-35,000-10,000 =1,02,000

Absolute Liquid Assets = Cash+ Government Securities =42,000+24,000=66,000

Comment: All the three ratios show good liquidity position as all the three ratios are more than rule of thumb. The rule of thumb for current ratio is 2:1, quick ratio is 1:1 and absolute liquid ratio is 0.5:1.

6.3 Efficiency/Activity/Turnover Ratio

The overall performance of a company is evaluated on the basis of its ability to make sales using minimum resources. Turnover Ratios reflect the speed at which assets are utilized in effecting sales. A higher turnover ratio means efficient use of funds by management in generating more sales. The important turnover ratios are :

1. Stock by inventory turnover Ratio
2. Debtors/Receivables turnover Ratio
3. Creditors/ Payables turnover Ratio

4. Working Capital Turnover Ratio

Stock Turnover Ratio/Inventory Turnover Ratio/Stock Velocity

This Ratio indicates the amount of sales per rupee of investment in inventory. This is calculated by dividing cost of goods sold of a period by the average stock of the period.

Inventory Turnover Ratio= Cost of Goods sold / Average Inventory(at cost)

Notes:

1. **Cost of goods sold** =Opening Stock +Net purchases+ Direct Expenses-Closing Stock

   Or

   Cost of goods sold=Net Sales-Gross Profit.
2. **Average inventory**=(opening inventory+ Closing inventory)/2
3. Inventory here will mean inventory of finished goods only. Because it only is capable of being sold.
4. This ratio may be calculated on the basis of net sales but in such situation average inventory will be taken at sale price. In departmental stores, where inventory is usually valued at sale price, this ratio is calculated on this basis (i.e. Net sales/average inventory at selling price).
5. If average stock cannot be know then this ratio may be calculated with the figure of closing inventory(i.e. Net sales/Closing stock).
6. In case of manufacturing concern inventory turnover ratio may be known separately for raw material and finished goods both applying the following formulae:

Raw material Turnover Ratio= Raw material consumed / Average inventory of Raw material

Finished goods Turnover Ratio =Cost of goods sold / Average inventory of finished goods

7. Another approach of this ratio is computation of stock velocity. Stock velocity can be measured in months also by applying following formula.

Stock velocity(months)= Average Stock / Cost of goods sold x 12 months or months in a year / Inventory turnover ratio

This Ratio indicates the period during which supply of goods may be maintained out of current stock without it's replenishment.

Interpretation:

1. Inventory Turnover Ratio (ITR) is an indicator of velocity of flow of inventory in business. This so the rate of conversion of stock into sales. In fact, inventory policy of management and liquidity of firm both may be test by this ratio. This is also a measure of marketing capacity of the firm.

2. Comparatively higher inventory turnover ratio is an indicator of expansion of business (efficiency is sales increases) and efficient management of inventory because it shows higher sales with lesser investments in inventory. Such firms may earn high profits even at low margin of profit. On the country, a fall in the ratio is an indicator of dull business and over-investment in inventories.

Illustration: (2)

Calculate Stock turnover Ratio from the following information of Sanjit Limited:
Opening Stock Rs.20,000, Purchase Rs.1,09,000, Direct Expenses Rs.1,000, Closing Stock Rs.40,000, Administration Expenses Rs.5,275, Selling and Distribution Expenses Rs.10,000, Sales Rs.2,50,000.

Solution :

Cost of goods sold = Opening stock+ Net Purchases+ Direct expenses- Closing stock
= Rs.20,000+Rs.1,09,000+ Rs.1,000-Rs.40,000= Rs.90,000.

Average Stock = (Opening inventory + Closing inventory) /2
= Rs.(20,000+40,000)/2 = Rs. 30,000.

Stock Turnover Ratio = (Cost of Goods sold/ Average Inventory)
= Rs.90,000/Rs.30,000= 3 times

Debtors Turnover Ratio or Receivable Turnover Ratio (DTR)

A concern may sell goods on cash as well as on credit. Credit is one of the important elements of sales promotion. The volume of sales can be increase by following a liberal credit policy. The effect of a liberal credit policy may result in trying up substantial funds of a firm in the form of trade debtor (or receivables). Trade debtors are expected to be converted into cash within a short period of time and are included in current assets. Hence, the liquidity position of concern to pay its short term obligations in time depends upon the quality of its trade debtors.

Debtors Turnover Ratio or Accounts Receivable Turnover Ratio indicates the velocity of debt collection of firm. In simple words, it indicates the number of times average debtors (receivable) are turned over during a year. This ratio is a qualitative analysis of a firm's marketing and credit policy and debtors realization. It is calculated to know the uncollected portion of credit sales in the form of debtors by establishing relationship between trade debtors and net credit sales of the business. The following formula is applied for this purpose.

Debtor Turnover Ratio(DTR) = Net Credit Sales / Average Trade Debtor

Notes:

1. Trade Debtors means Debtors plus Bills Receivables.
2. Average Trade Debtors = (Opening Trade Debtor+ Closing Trade Debtors)/2
3. It should be noted that provision for bad and doubtful debts should not be deducted since this may give an impression that some amount of receivables has been collected.

Interpretation:

1. The higher the value of debtors' turnover the more efficient is the management of debtors or more liquid the debtors are. A increase in this ratio each year is an indicator of efficiency of marketing and credit policy of the firm.
2. Similarly , low debtors turnover ratio implies inefficient management of debtors or less liquid debtors.

Average Collection Period:

In analyzing the debtors, usually average collection period is also calculated with debtors' turnover ratio. The period indicates the period taken in the realization or collection of debtors.

There are three formula for computation of average collection period:

Average Collection Period = Average Trade Debtors / Credit Sales Per Day

Average Collection Period = Average Trade Debtors X Number of Working Days in a Year / Net Credit Day

Average Collection Period = Number of Working Days in a Year / Debtor Turnover Ratio(DTR)

Notes:

1. **Credit Sales Per Day** =(Net Credit Sales/Number of working days in a year)
2. Number of working days in a year differs from organization to organization. It may be taken as 365/360/300.

Interpretation:

1. This ratio measure the quality of debtors. A short collection period implies prompt payment by debtors. It reduces the chances of bad debts. Similarly, a longer collection period implies too liberal and inefficient credit collection performance. It is difficult to provide a standard collection period of debtors.

Illustration (3):

From the following information of Ezra Limited calculated Debtors Turnover Ratio(DTR) and Average Collection Period(ACP) .

Particular	Amount(Rs.)
Total Sales for the Year	2,62,000
Cash Sales	20% of Total Sales
Sales Return out of credit sales	15,000
Opening Balance of Sundry Debtors	10,000
Opening Balance of Bills Receivable	2,000
Closing Balance of Sundry Debtors	15,000
Closing Balance of Bills Receivable	3,000

Solution:

Net Credit Sales = Total Sales-Cash Sales-Sales Return out of Credit Sale

= Rs.2,62,000-(20% of Rs.2,62,000)-Rs.15,000

= Rs.(2,62,00-54,400-15,000) =1,94,600

Opening Trade Debtors = Opening Debtors + Opening Bills Receivable

= Rs. 10,000 + Rs. 2,000 = Rs. 12,000

Closing Trade Debtors = Closing Debtors + Closing Bills Receivable

= Rs. 15,000 + Rs. 3,000 = Rs. 18,000

Average Trade Debtors = (Opening Trade Debtors + Closing Trade Debtors)/2

= Rs. (12,000 + 18,000)/2 = Rs. 30,000/2 = Rs. 15,000

Debtors Turnover Ratio = Net Credit Sales/ Average Trade Debtors
= Rs. 1,94,600/ Rs. 15,000 = Rs. 13 Times (Approximately)

Average Collection Period = (Numbers of working Days in a Year/Debtors Turnover Ratio)
= 365 Days/ 13 = 28.07 days or 28 Days (Approximately)

Creditors Turnover Ratio (CTR)/Payables Turnover Ratio)
The short-term creditors (i.e. suppliers of goods) are very much interested in his ratio, as it shows the firm's trend of payments to its short-term creditors. This ratio shows the relationship of net credit purchases and average trade creditors.

Credit Turnover Ratio (DTR) = Net Credit Purchase
Average Trade Creditors

Notes:-
1. Trade Creditors means Creditors plus Bills Payable.
2. Average Trade Creditors = (Opening Trade Creditors + Closing Trade Creditors)/2
3. Net credit Purchase consist of gross credit purchase minus purchase returns.

Interpretation: This ratio indicates the velocity with which the creditors are turned over in relation to purchases. Higher the creditors velocity, better it is. A fall in the ratio shows delay in payment to creditors.

Average Payment Period: While analyzing creditors, usually average payment period is also calculated. This period discloses the time taken by the firm in making payment to its trade creditors. Average payment period ratio gives the average credit period enjoyed from the creditors. It can be calculated using any one the following three formulae.

Average Payment Period = Average Trade Creditors
Credit Purchases Per Day

Average Payment Period = Average Trade Creditors X Number of Working Days in a Year
Net Credit Purchase

Average Payment Period = Number of Working Days in a Year
Creditors Turnover Ratio (CTR)

Interpretation:
1. The average payment period ratio represents the number of days by the firm to pay its creditors.
2. A high creditor's turnover Ratio or a lower credit period ratio signifies that the

creditors are being paid promptly. This situation enhances the credit worthiness of the company.

Illustration (4):

From the following information of Aiswarya Limited calculate Creditors Turnover Ratio and Average payment Period:

Particulars	**Amount (Rs.)**
Credit Purchases during the year	5,30,000
Purchase return (Out of credit purchase)	30,000
Opening Creditors	90,000
Closing Creditors	50,000
Opening Bills Payables	20,000
Closing Bills Payables	40,000

Solution:

Net Credit Purchase Credit Purchase – Purchase Return= Rs. 5,30,000- Rs. 30,000= Rs. 5,00,000

Opening Trade Creditor= Opening Creditor + Opening Bills Payable

= Rs. 90,000 + Rs. 20,000= Rs. 1,10,000

Closing Trade Creditor= Closing Creditor + Closing Bills Payable

= Rs. 50,000 + Rs. 40,000= Rs. 90,000

Average Trade Creditor= (Opening Trade Creditor + Closing Trade Creditor)/2

= (Rs. 1,10,000 + Rs. 90,000)/2= Rs. 2,00,000/2= Rs. 1,00,000

Creditor Turnover Ratio = Net Credit Purchase/Average Trade Creditor

= Rs.5,00,000/ Rs.1,00,000=5 times

Average Payment Period =Number of Working Days in a year/Creditor Turnover Ratio

= 365 Days/5=73 Days

Working Capital Turnover Ratio or Ratio of Sales to Working Capital

Working capital turnover Ratio indicates the velocity of the utilization of net working capital. This ratio is a measure of efficiency of working capital utilization. This ratio represents the number of times the working capital is turned over in the course of year It is calculated as follows:

Working Capital Turnover Ratio= $\frac{\text{Net Sales(Cost of Sales)}}{\text{Net Working Capital}}$

Note: Net working Capital=Current Assets-Current Liabilities

Interpretation:

1. A high working capital turnover ratio shows the efficient utilization of working capital.
2. But too high or too low ratio indicates over-trading and under-trading respectively. Both these situations are harmful for the smooth conduct of the business.

3. However, the ratio should be interpreted along with inventory turnover and debtor turnover ratios.

Illustration 16:

Form the following particular of Abhijit Limited, compute Current Assets Turnover Ratio and Working Capital Turnover Ratio:

Particular	Amount(Rs)
Cash	10,000
Bills Receivable	5,000
Sundry Debtor	25,000
Stock	20,000
Sundry creditors	30,000
Cost of Sales	1,40,000

Solution:

Current Assets = Cash+ Bills Receivable+ Sundry Debtor+ Stock
= Rs.(10,000+5,000+25,000+30,000) =Rs.70,000

Current liabilities = Sundry Creditor= Rs. 30,000

Net Working Capital = Current Assets-Current Liabilities=Rs.(70,000-30,000)
= Rs. 40,000

Current Assets Turnover Ratio= Cost of Sales/ Current Assets
= Rs.1,40,000/Rs.70,000 = 2 times

Working Capital Turnover Ratio = Cost of Sales/Net Working Capital
= Rs.1,40,000/Rs.40,000= 3.5 times

6.3 SOLVENCY RATIO

The term solvency refers to the ability of the concern to meet its long-term commitments. Solvency is examined with reference to the firm's capacity to pay interest regularly and eventually repay on maturity the sum borrowed. Long-term creditors as well as parent and prospective shareholders are interested in the analysis of solvency of a company. The following ratios are calculated for examining long-term solvency of a concern:

1. Debt-Equity Ratio/Debt-Net worth Ratio
2. Proprietary Ratio/Equity Ratio
3. Solvency Ratio
4. Fixed Assets to Net worth Ratio
5. Funded Debt to Capitalization Ratio
6. Fixed Assets to Total Long-term fund Ratio or Fixed Assets Ratio
7. Ratio of tangible assets to total debts
8. Debt-Service coverage Ratio/Interest coverage Ratio/Fixed Charges Coverage Ratio
9. Preference Dividend Coverage Ratio
10. Cash to debt service Ratio or Debt cash flow coverage Ratio

Debt-Equity Ratio or Debt-Net worth Ratio

A firm used both equity and debt for financing its assets. The ratio of these two sources of funds is turned as Debt Equity Ratio. This ratio indicates the relationship between external

equities and internal equities. This is also known as External-Internal Equity Ratio. It is calculated as follows:

Debt-Equity Ratio= Outsider's Long-term Fund(Debt)
Shareholder's Fund or Net worth Equity

Outsider's Long term Fund (Debt)	**Shareholder's Fund/Net-worth (Equity)**
Debenture or Bond+ Long-Term loan from Financial Institutions +Other long-term Borrowing	Preference share capital+ Equity share capital, +Capital reserve, Retained earnings and any other reserves representing the accumulated profit-Accumulated Losses (if any)

Interpretation:

1. The standard norm of Debt-Equity ratio is 2:1. It indicates that total borrowed fund can be two times of equity or owned funds. The intention is to maximize the return of equity shareholders by taking, advantage of cheap borrowed funds. However, lending institution prefer a debt equity ratio of 1:1.

Proprietary Ratio/Equity Ratio

This ratio is also known as Equity Ratio or Shareholders Equity to Total Equity Ratio or Net Worth to Total Assets Ratio. It indicates the relationship of owner's funds (shareholders equity) to total assets or total equities.

Proprietary Ratio or Equity Ratio = Shareholder's Fund
Total Assets

Note: This ratio can be represented in percentage also which will indicate the percentage of owner's fund to total assets.

Interpretation:

1. Higher the ratio lesser the dependence for capital on outside sources, better the long term solvency and greater the protection to the debt-holders of the firm.
2. In case of stability in earnings of the firm, comparatively a lower ratio can also be accepted.

Solvency Ratio of Debt to total asset Ratio

It is calculated by using any of the following two ratios.

Solvency Ratio =Total Borrowed Funds
Total Assets

Solvency Ratio =100-Equity Ratio

Interpretation:

he higher this ratio, the greater is the dependence of the firm on outsiders for its financing. The position of debt holder in this case is not safe in the event of winding up.

Proprietor's Liability Ratio

This ratio indicates the relationship between two main sources of financing i.e. proprietor's fund/shareholder's fund and outsider's loans (or liabilities). It is calculated as follows:

Proprietor's Liabilities Ratio=Proprietor's Funds
Total Liabilities

Interpretation: Higher the ratio better is the security of debt holders.

Fixed Assets to Net-worth Ratio or Ratio Fixed Assets to Proprietor's Fund

This ratio is calculated by dividing the value of fixed assets after depreciation by proprietor's fund.

Assets Net Worth Ratio=Net Assets(Assets-Depreciation)
Networth

Interpretation:

1. This ratio should not exceed 1:1.
2. On the contrary, lesser the ratio, better the position because in such a case proprietor's funds will be available for working capital needs because in such case proprietor's funds will be available for working capital need also.

Fixed Assets to Total Long-term fund Ratio or Fixed Assets Ratio

It is calculated as follows:

Assets Ratio= Net Assets(Assets-Depreciation)
Total Long-term Funds

Interpretation:

1. This ratio should not exceed 1:1 If it exceeds 1:1 , it implies that short-term funds of the firm have also been applied for acquiring fixed assets which in no way be considered appropriate.
2. The general rule is that fixed assets should not exceed 2/3rd of total long-term funds so that rest of the long-term funds could be utilized for meeting working capital requirement.

Ratio of tangible assets to total

This ratio indicates the relationship of tangible assets to total debts.

Ratio of Tangible Assets Total Debts =Tangible Assets
Total Debt

Interpretation: This ratio measures the ability of the firm to pay its debt, as it shows the extent to which total liabilities of the firm can be repaid its tangible assets. Higher the ratio greater is the security of the creditors.

Debt Service Ratio(DSR) Investment Coverage Ratio

It is calculated by dividing the net profit before interest and taxes by fixed interest charges.

Debt Service Ratio=Earning Before Interest Taxes (EBIT)
Charges

Interpretation:

1. This ratio is very meaningful for the long-term creditors of the firm because it measures the firm's capacity to pay interest on its loans on due dates.
2. It also measures the margin of safety for the lenders. Higher the ratio, better is the position of long-term creditors.

Preference Dividend Coverage Ratio:

It is calculated as follows:

Preference Dividend Coverage Ratio=Profit After Tax(PAT)
Preference Divined

Interpretation:

1. This ratio is an index of the risk accruing to preference shareholders.

2. Coverage of at least 2 is considered standard.

Cash to Debt Service Ratio or Debt Cash flow Coverage Ratio

If the firm has created sinking fund to repay the long-term loans, then, annual contribution to sinking fund shall also be added to interest charges and the following formula shall be applied.

Debt Cash flow Coverage Ratio = Annual Cash Flow before interest tax

Interest + [(sinking fund appropriation on Debt)/(1-Tax)]

Interpretation:

High coverage ratio would be repaired in firm whose incomes are very instable. The firms whose incomes are stable; comparatively a low coverage ratio will be sufficient.

General Probability Analysis

The different types of General Profitability Ratios are as under:

Gross profit ratio

This ratio establishes relationship between gross profit and net sales. This indicates gross profit margin to net sales and usually expressed in percentage. The formula is as follows:

Gross Profit Ratio=Gross Profit X 100

Net sales

Interpretation:

1. Higher the ratio, better it is.
2. There is no rule of thumb for Gross Profit Ratio. It may vary from business to business, industry to industry and also for different units within the same industry.
3. The Gross Profit should be adequate to cover administrative, selling and distribution expenses and to provide for fixed charges, charges dividends and desired reserves.

Operating Ratio

This ratio is calculated by dividing the operating cost (i.e. cost of goods sold plus all operating expenses) by net sales.

Operating Ratio=(cost of goods sold + operating expenses) x 100

Net sales

Notes:

1. Operating expenses means the some administrative, selling and distribution expenses.
2. 100 minus operating ratio is operating profit ratio.
3. Operating profit ratio measures efficiency and general profitability of the business.

Interpretation:

1. Lower the ratio, higher the profit left for recouping the non-operating expenses and higher the net profits.
2. However, 75 to 85 percent may be consider to be a satisfactory rate in case of manufacturing concern.

6.4 OPERATING PROFIT RATIO OR OPERATING MARGIN RATIO

The operating profit of a business is the profit after all operating expenses incurred in the regular course of operations. It is a measure of operating efficiency of a business. The ratio

in calculated by dividing operating profit or earnings before interest and taxes[EBIT] by net sales.

Operating Profit Ratio=Operating Profit EBIT x 100
Net sales

Notes:

1. **Operating profit** = Net sales –(cost of goods sold+ operating expenses)
2. **Operating profit ratio**= 100-operating ratio.

Expenses Ratio

It is calculated to show the relation each item of manufacturing cost and operating expenses to net sales. This ratios help in analyzing the causes of variation of operating ratio. The following formula used for calculation of expenses ratio is as follows:

Expenses Ratio= Particular Expenses x 100
Net sales

Interpretation:

1. These ratios show how much part of net sales is involved in recouping various operating expenses.
2. The lower operating ratio, the larger is the profitability and higher the operating ratio, lower is the profitability.

Net Profit Ratio

This ratio measures the rate of net profit on sales. Net profit ratio is the ratio of net profit (after taxes) to net sales. It is expressed as percentage. This is calculated as follows:

Net profit ratio = Net profit after tax X100
Net sales

Interpretation:

1. This ratio is the measure of overall profitability any efficiency of the firm.
2. The higher the ratio, the better is the profitability of the firm.

Illustration 22:(5)

Following is the income statement of M/S Raman and Co. For the year ending 31 st march 2018.

Particulars	Amount	Particulars	Amount
To opening stock	45,750	By sales	3,00,000
To Purchases	1,89,150	By closing stock	59,100
To carriage	1,200		
To wages	3,000		
To Gross profit	1,20,000		
To administrative expenses	3,59,100	By gross profit	3,59,100

To finance expenses	60,600	By not-operating income	1,20,000
Interest		Interest	
Discount	720	Dividend	900
Bad debts	1,440	By profit on sale of securities	2,250
To selling expenses	2,040		450
To non-operating expenses	7,200		
To net profit	1,200		
	50,400		
	1,23,600		1,23,600

Your are required to calculate

1. Expenses ratio
2. Gross profit ratio
3. Net profit ratio
4. Operating ratio
5. Operating profit ratio

Solution:

1. Expenses Ratio

Administrative expenses ratio = $\frac{\text{Administrative expenses}}{\text{Sales}} \times 100$

$= \frac{60,600}{3,00,000} \times 100 = 20.2\%$

Finance Expenses ratio = $\frac{\text{Finance Expenses}}{\text{Sales}} \times 100$

$= \frac{4,200}{3,00,000} \times 100 = 1.4\%$

Selling and Distribution Expenses Ratio = $\frac{\text{Selling Distribution Expenses}}{\text{Sales}} \times 100$

$= \frac{7,200}{3,00,000} \times 100 = 2.4\%$

Non-Operating Expenses Ratio = $\frac{\text{Non-Operating Expenses}}{\text{Sales}} \times 100$

$= \frac{1,200}{3,00,000} \times 100 = 0.4\%$

2. Gross profit Ratio

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

$= \frac{1,20,000}{3,00,000} \times 100 = 40\%$

3. Net Profit Ratio

Net Profit Ratio =Net Profit after tax X100
Net Sales

= 50,400 X100 =16.8%
3,00,000

Alternatively,

Net Profit Ratio =Net Operating Profit X 100
Net Sales

= 48,000 X100 =16%
3,00,000

4. Operating Ratio

Operation Ratio = (Cost of Goods Sold + Operating Expenses) X 100
Sales

= (1,80,000+72,000) X 100 =84.0%
3,00,000

5. **Operating Profit Ratio** = 100- Operating Ratio =100-84=16%

Overall Profitability Ratios

The important tests applied to measure overall profitability are:

1. Return on Equality Capital (ROEC)
2. Return on Net worth (RONW)
3. Return on Investment (ROI)
4. Return on Assets(ROA)
5. Return on Capital Employed (ROCE)

6.5 RETURN ON EQUITY CAPITAL(ROEC)

Return on equity capital shows the relationship between profits of a company available for its equity share holders and its equity capital. This ratio is calculated with the help of the **following formulae:**

Return on Equity Capital =Earning Available for Equity Shareholders X100
Equity Share Capital (Paid-up)

Interpretation:

1. In fact the ratio provides the real test of managerial efficiency in utilizing the equity shareholders money.
2. There is no rule of thumb for this ratio. Hence, higher the ratio, better it is.

Return on Shareholder's Fund or Proprietor's Fund or Net worth

This ratio measure the profitability of the concern in relation to total investments made by the shareholders (or proprietors) in the business. It is calculated by dividing net profit after interest and taxes by shareholder's fund.

Return on Shareholder's Fund = Profit After Tax
Shareholder's Fund

Notes:

1. The excess of total assets over total outsider's liability of an enterprise is known as shareholder's fund or proprietor's funds or net worth.

2. This ratio reveals the efficiency of utilization of shareholder's fund, higher the ratio better are the results.

Return on Total Investment/Return on Investment (ROI)

This is measure of managerial efficiency of utilizing funds invested in the firm. This is calculated as follows.

Return on Investment (ROI) = Earning Before Interest Tax (EBIT) X 100
Total Investment

Note: Total investment implies shareholder's funds plus long-term liabilities.

Interpretation: Higher the ratio better is the profitability of the company.

Return on Total Assets or Total Resources(ROA)

Profitability can be measures in terms of the relationship between net profits and total assets of the firm. This ratio is also called as profit to asset ratio. This is calculated as follows:

Return on Capital Employed(ROCE)

The prime objective of making investments in any business is to obtain satisfactory return on capital invested. Hence, the return on capital employed is used as a measure of success of a business in realizing this objective.

Return on Gross Capital Employed = Adjust Net Profit X100
Gross Capital Employed

Return on Gross Capital Employed = Adjust Net Profit X100
Gross Capital Employed

Return Proprietor's Net Capital Employed = Adjust Net Profit X100
Proprietor's Net Capital Employed

Return Average Capital Employment = Adjust Net Profit X100
Average Capital Employment

Market Based Ratios or Ratios for Prospective Investors

Market based Ratios are used by shareholders and investors to evaluate the performance of a **company in the market place. These ratios include:**

1. Earnings per Share (EPS)
2. Dividend Payout Ratio (D/P Ratio)
3. Dividend Yield Ratio
4. Price Earnings Ratio(P/E Ratio)
5. Price to Book Value Ratio(P/B Ratio)

Earnings per Share (EPS)

Earnings per share is calculated by dividing net profits after tax and preference divided by total number of equity shares.

Earnings Per Share (EPS) =Earnings available for Equity Shareholders
Number of Equity Share

Interpretation:

1. Earnings per share are good measure of profitability. Market value of a share is usually determined on the basis of its EPS. Higher the EPS, better it is. EPS of a company may be compared with that of similar companies' own past.

Dividend Payout Ratio

This is a ratio of dividend per share to earnings per share. It indicates the extent to which earnings per share have been used for paying dividend and what portion of earnings has been retained in the business for growth and future uncertainties .

Dividend Payout Ratio=Dividend Per Share X100
Earnings Per Share

Note: Sometimes we also calculate Retention Ratio=100-Dividend Payout Ratio.It represents that percentage of earnings which is retained and ploughed back in business.

Interpretation:

1. Guidelines for this ratio very widely. Companies often attempt to pay approximately 50% of their earning as dividend.

Dividend Yield Ratio

This is calculated as follows:

Dividend Yield Ratio = Dividend Per Share
Market Price Per Share

Interpretation:

The ratio compares the rate of dividend with the market price of the share. This ratio is calculated to know the effective return for the owners.

Price-Earnings Ratio(P/E Ratio)

Following formula is used to calculate price earnings ratio:

Price Earnings Ratio= Market Price Share
Earnings Per Share

Interpretation:

1. This is most widely used ratio in the stock exchange by the investors. This ratio indicates upto how much the public is ready to pay for future earning prospects of the company.
2. A high price-earnings ratio indicates investor's faith in stability and appreciation of the company's earnings.

Price to Book value Ratio(P/B Ratio)

The PBV Ratio is the market price per share divided by the book value par share. The market price per share is simply the stock price. The book value per share is a firm's assets minus its liabilities, divided by the total number of share.

Price Book Value Ratio=Market Price Per Share
Book Value Per Share

Note: the market price per share is simply the stock price. The book value per share it a firm's assets minus it s liabilit8ies, divided but eh total number of shares.

Interpretation:

1. A higher P/B Ratio implies that investors expect management to create more value from a given set of assets, or else equal (and /or that the market value of the firm's assets is significantly higher than their accounting value).

6.6 DUPONT ANALYSIS

DuPont Analysis is an extended examination of Return of Equity (ROE) of a company. This analysis was developed by the DuPont Corporation in the year 1920.ROE is that is and important measure of profitability that only requires two numbers to compute: net

income and shareholders' equity. ROE is computed by dividing Net Income with shareholder's equity (ROE=Net Income/Shareholder's equity). If this number goes up, it is generally a good sign for the company as it is showing that the rate of return on the shareholders' equity is raising. The problem is that this number can also increase simply when the company takes on more debt, thereby decreasing shareholder equity. This would increase the company's leverage, which could be a good thing, but it will also make the stock riskier. Hence, without a way of breaking down ROE components, investors could be duped into believing a company is a good investment when it's not.

6.7 REVIEW QUESTION:

1. Describe the following ratios with illustration.

a) Current Ratio

b) Operation Ratio

c) Debt to Equity Ratio

d) Inventory / Stock Turnover Ratio

2. What are the important profitability ratios ? How they are worked out ? Explain and illustrate.

3. a) Calculate:

i) Current Asset

ii) Liquid Assets

iii) Inventory

Current Ratio=2.6:1

Liquid Ratio =1.5:1

Current liabilities =Rs.40,000

b) Given :

Current Ratio 2.5

Liquidity Ratio 1.5

Working Capital Rs/.60,000

Calculate a) Current liabilities

b) Current Assets

c) Liquid Assets

d) Stock

UNIT-7 CASH FLOW STATEMENT

Structure

7.0 LEARNING OBJECTIVES

After going through this unit, you will able to

- Discuss the meaning and purpose of Cash Flow Statement
- Learn about Cash Flow from Operating Activities
- Prepare the Cash Flow Statement under Direct Method
- Outline the distinction between Cash Flow Analysis and Fund Flow Analysis
- Discuss the uses of Cash Flow Statement.

7.1 INTRODUCTION

In this unit, we will discuss the concept of cash flow analysis. Cash flow helps us to make projections of cash inflows and outflows for the near future to determine the availability of cash during a particular time period. You will find this unit very interesting because, after going through this unit you will be able to analyse the financial position of different companies.

The statement of cash flows, required by the Accounting Standard - 3, is a major development in accounting measurement and disclosure because of its relevance to financial statement users. Cash Flow Statement is reasonably simple and easy to understand. It is also difficult to fudge or manipulate the cash flow numbers and hence often used as a way to test the real profitability of the firm. For instance, if your company approaches a bank for a loan, your company will normally highlight the profitability of your business as your strength. But the bank manager may not be sure how you arrived at the profit, particularly when we read a lot of accounting related

scams. Hence, the bank manager would like to examine whether you have actually earned the profit or not. Cash Flow Statement will be useful to examine whether the profits are realised and if so, to what percentage of profit a firm has realised. In other words, a company that shows a high level of profit need not be liquid in cash. Suppliers of goods will also be interested to examine the cash flow position of the company before supplying goods on credit. Investor, who have no control on management, will also be interested in examining the cash flow to supplement her/his analysis on profitability of the business.

7.2 MEANING OF CASH FLOW STATEMENT

In a business organisation, hundreds and thousands of transactions are done every day. Out of those transactions some are executed on cash and some are executed on credit basis. Some transactions are executed on a partial cash basis and the balance amount on a credit basis. So at the end of each day, week, month, quarter or a year, the organisation is left with a huge number of transactions. If the management wants to know the status of the cash and cash equivalents available in the organisation, then neither Profit and Loss Account nor Balance Sheet or any other statements of accounts servers the purpose. In this circumstance, Cash Flow Statement shows the cash and cash equivalents position of an organisation which includes cash transactions. In the preparation of balance sheet and income statement, accounting is done on accrual basis but in cash flow statement, accounting is done on cash basis. Moreover, Cash Flow Statement also shows the source of cash receipts and it also reveals the purposes for which payments are made.

Cash flow statement shows the movement of cash and cash equivalents from the business as well as into the business which results out of the business activities. Cash Flow Statement basically shows the cash inflows and cash outflows. When cash comes into the books of accounts in the organisation, then it is referred to as cash inflow. Similarly, when cash goes out from the books of accounts of the organisation, then it is referred to as cash outflow. The difference between the cash inflow and cash outflow is referred to as net cash flow. Cash Flow Statement explains the reasons for the changes in cash balance of a business between the two consecutive Balance Sheet dates.

7.3 PURPOSE OF CASH FLOW STATEMENT

The main objective of preparing the Cash Flow Statement is to deliver information about cash receipts, cash payments, and the difference in cash position out of business activities from the operations, investments, and financing activities of a company during a particular financial year. In other words, the Cash Flow Statements where an organization's cash is being generated, and where its cash is being paid during a particular period of time. Thus, the Cash Flow Statements helps the management to analyse the liquidity as well as long term solvency of the business. The main purpose

of Cash Flow Statement is to transform the accrual basis income statement to a cash flow statement.

Information about the cash flows of a business is useful in providing users of financial statements with a basis to assess the ability of the enterprise to generate cash and cash equivalents and the needs of the enterprise to utilise those cash flows. The economic decisions that are taken by users require an evaluation of the ability of an enterprise to generate cash and cash equivalents and the timing and certainty of their generation. The Standard deals with the provision of information about the historical changes in cash and cash equivalents of an enterprise by means of a cash flow statement which classifies cash flows during the period from operating, investing and financing activities.

Users of an enterprise's financial statements are interested in how the enterprise generates and uses cash and cash equivalents. This is the case regardless of the nature of the enterprise's activities and irrespective of whether cash can be viewed as the product of the enterprise, as may be the case with a financial enterprise. Enterprises need cash for essentially the same reasons, however different their principal revenue- producing activities might be. They need cash to conduct their operations, to pay their obligations, and to provide returns to their investors.

There are basically three components of Cash Flow Statements which are briefly given below:

(a) Cash Flow from Operating Activities: In this case, all the business transactions resulting from operating activities of the business that are executed only in terms of cash are considered. Operating activities basically represent the revenue generating activities of a business. Some examples of operating activities are the cash receipts from the sale of goods and services like salaries and wages, rents, transportation and any other operating expenses for the smooth running of its business.

(b) Cash Flow from Investing Activities: In this case, all the business transactions resulting from investment activities of the business that are executed only in terms of cash are considered. Investment activities basically represent the payments made to purchase of long term assets and thereby cash receipts from the sale of long term assets. Some examples of investment activities are the cash receipts from sale of fixed assets or any other assets, plants, machineries, equipment, the purchase or sale of equities, debts or debentures etc.

(c) Cash Flow from Financing Activities: Here, all the business transactions resulting from financing activities of the business that are executed only in terms of cash are considered. Financing activities are transactions between a business and its creditors and investors. Financing activities basically represents those activities that will change the equity share holding or borrowings of a business. Some examples of financing activities are the sale or purchase of a company's own shares, announcement of

dividends and its payment to its shareholders, repayment of short-term loans and long-term loans, the retirement of bonds payable etc.

7.4 PREPARATION OF CASH FLOW STATEMENT

After ascertaining information regarding different sources and uses of cash, we can easily prepare the Cash Flow Statement. There is no specific format of preparing Cash Flow Statements but usually it is prepared in report form. The information for the Cash Flow Statement is derived from the income statement and balance sheets for the current and past financial years. In preparing the Cash Flow Statement, the three components viz., operating, investment and financing activities are considered.

As already discussed, operating activities are the principal revenue-producing activities of the enterprise and other activities that are not investing or financing activities. Let us now cite some examples of cash flows that are generated from operating activities:-

- Cash receipts from the sale of products and services
- Cash receipts from patents, royalties, fees, commissions and from such sources.
- Cash payments to suppliers for products and services
- Cash payments to the employees of the organisation
- Cash receipts and cash payments of an insurance enterprise for premiums and claims
- Cash payments or refunds of income taxes unless they can be specifically identified with financing and investing activities
- Cash receipts and payments relating to advanced derivative products like futures contracts, forward contracts, option contracts and swap contracts when the contracts are held for dealing or trading purposes.

The second component of Cash Flow Statement is all those cash that are generated from investing activities. Investing activities are the acquisition and disposal of long- term assets and other investments not included in cash equivalents. Let us now cite some examples of cash flows that are generated from investing activities:-

- Cash payments to possess fixed assets including intangible assets as well as assets acquired to capitalised research and development activities and self- constructed fixed assets.
- Cash receipts from the sale of fixed assets including intangible fixed assets.
- Cash payments to acquire shares, warrants or debt instruments of other enterprises and interests in joint ventures other than cash payments for trading activities.
- Cash receipts from disposal of shares, warrants or debt instruments of other enterprises and interests in joint ventures other than cash receipts from trading activities.

- Cash advances and loans made to third parties other than advances and loans made by a financial enterprise
- Cash receipts from the repayment of advances and loans made to third parties other than advances and loans of a financial enterprise
- Cash payments for advanced financial products like futures contracts, forward contracts, option contracts and swap contracts other than the payments made for trading activities
- Cash receipts from futures contracts, forward contracts, option contracts and swap contracts other than receipts generated from trading activities.

Financing activities are activities that result in changes in the size and composition of the owners' capital (including preference share capital in the case of a company) and borrowings of the enterprise. Let us now cite some examples of cash flows that are generated from financing activities:-

- Cash proceeds from issuing shares or other similar financial instruments
- Cash proceeds from issuing debentures, loans, notes, bonds, and other short or long-term borrowings
- Cash repayments of amounts borrowed

The Cash Flow Statement begins with the opening balance of cash and after adding different sources of cash and subtracting application of cash, the cash balance at the end of the particular period is found. This is explained in detail in the next section.

7.5 FORMAT OF CASH FLOW STATEMENT (AS3: REVISED METHOD)

This Accounting Standard is not mandatory for Small and Medium Sized Companies, as defined in the Notification. Such companies are however encouraged to comply with the Standard.

Cash Flow Statement of__(Name of the Company) for the Year___(Current Financial Year)

Particulars	Amount (in Rs.)	Amount (in Rs.)
Cash Flows From Operating Activities		
Cash receipts from customers		
Cash paid to suppliers and employees		
Cash generated from operations		
Income taxes paid		
Cash flow before extraordinary item		
Net cash from operating activities		
Cash Flows From Investing Activities		
Purchase of fixed assets		
Proceeds from sale of equipment		
Interest received		
Dividends received		
Net cash from investing activities		
Cash Flows From Financing Activities		
Proceeds from issuance of share capital		
Proceeds from long-term borrowings		
Repayment of long-term borrowings		
Interest paid		
Dividends paid		
Net cash used in financing activities		
Net increase in cash and cash equivalents		
Cash and cash equivalents at beginning of period		

7.6 CASH FLOW STATEMENT UNDER DIRECT METHOD

Cash flow statements from the operating activities can be found using the direct method. Cash flow statements under direct method basically considers major classes of gross cash receipts and gross cash payments. Under direct method, major cash inflows and outflows are considered like\ cash proceeds related to trades, employees, expenses, etc. In the profit and loss account, some items are expressed on accrual basis which are converted to cash equivalent with the following adjustments:

(1) Cash expenses = Expenses on accrual basis + Prepaid expenses in the beginning and Outstanding expenses in the end – Prepaid expenses in the end and Outstanding expenses in the beginning.

(2) Cash payments to Suppliers = Purchases + Trade Payables in the beginning – Trade Payables in the end.

(3) Cash receipts from Customers = Revenue from operations + Trade receivables in the beginning – Trade receivables in the end.

(4) Purchases = Cost of Revenue from Operations – Opening Inventory + Closing Inventory.

Illustration 01

Let us take one example to understand the preparation of Cash Flow Statements from operating activities using direct method from the information given below: - Statement of Profit and Loss of Expand Types Ltd. for the year ended on March 31, 2017.

Particulars	**Amount (Rs.)**
Cash receipts from customers	137600
Cash paid to suppliers and employees	120550
Dividends paid	80550
Factory Expenses	68000
Income taxes paid	29000
Purchase of fixed assets	180000
Interest paid	9500
Proceeds from issuance of share capital	350000
Proceeds from long-term borrowings	125000
Sale of old furniture	44000
Commissions paid	28000
Interest received	90000
Repayment of long-term borrowings	28000
Dividends received	19000
Opening Cash Balance	25000
Loans repaid	100000
Proceeds from sale of equipment	53000

Solution:

Let us now prepare the Cash Flows Statement from Operating Activities of Expan Types Ltd. using direct method as below: Cash Flow Statement from Operating Activities of Expan Types Ltd.

(A) Cash flow from Operating Activity		Amount (Rs.)
Receipts: Cash Sales from customers	1,37,600	
Payments: Cash Purchases	(1,20,550)	
Factory expenses	(68,000)	
Income tax	(29,000)	
Commission Paid	(28,000)	
Net Cash from Operating Activities: Total (A)		(1,07,950)
(B) Cash flow from Investment Activity		
Receipts: Proceeds from sale of equipment	53,000	
Dividends received	19,000	
Interest received	90,000	
Sale of old furniture	44,000	
Payments: Purchase of Fixed assets	(180,000)	
Net Cash from Investment Activities: Total (B)		26,000
(C) Cash flow from Financing Activity		
Receipts: Equity shares issued	3,50,000	
Proceeds from long-term borrowings	125000	
Payments: Loan repaid	(100000)	
Dividend disbursed	(80,550)	
Repayment of long-term borrowings	(28000)	
Interest paid	(9,500)	
Net Cash from Financing Activities: Total (C)		3,56,950
Net increase in cash and cash equivalents Total Cash Flow (A+B+C)		2,75,000
Add: Opening Cash Balance		25,000
Closing Cash Balance		2,00,000

7.7 DIFFERENCE BETWEEN CASH FLOW STATEMENT AND FUND FLOW STATEMENT

The basic differences between cash flow statement and fund flow statement are pointed out below:-

(a) Cash Flow Statement shows the cash and cash equivalents position of an organisation which includes cash transactions. On the other hand, a fund flow

statement is a statement of changes in financial position. Here, the word 'fund' represents the working capital of the business.

(b) Cash flow statement shows the movement of cash and cash equivalents from the business as well as into the business which results out of the business activities. Cash Flow Statement basically shows the cash inflows and cash outflows. Fund flow statement is a statement summarizing the significant financial changes which have occurred between the beginning and the end of a company's accounting period.

(c) In the preparation of balance sheet and income statement, accounting is done on accrual basis but in cash flow statement, accounting is done on cash basis. Moreover, Cash Flow Statement also shows the source of cash receipts and it also reveals the purposes for which payments are made. Fund Flow Statement is a supplementary statement and shows the sources of mobilisation of the funds and their detailed utilisation during a particular financial year. Fund Flow Statements also deal with the non-cash items.

(d) Cash Flow Statement explains the reasons for the changes in cash balance of a business between the two consecutive Balance Sheet dates. On the other hand, the Fund Flow Statements clearly identify the changes in working capital and also help the management to find out the factors responsible for this working capital changes.

(e) The main objective of preparing the Cash Flow Statement is to deliver information about cash receipts, cash payments, and the difference in cash position out of business activities from the operations, investments, and financing activities of a company during a particular financial year. In other words, the Cash Flow Statements where an organization's cash is being generated, and where its cash is being paid during a particular period of time. Thus, the Cash Flow Statements helps the management to analyse the liquidity as well as long term solvency of the business. The main purpose of Cash Flow Statement is to transform the accrual basis income statement to a cash flow statement. On the other hand, Fund Flow Statement helps management about the allocation of resources and shows the operational aspects of the business activities which are not available in Profit and Loss Account and Balance Sheet.

(f) Cash flow statement helps to find out the capacity of an organisation to meet its short-term obligations and liquidity position whereas a fund flow statement helps to find out the capacity of an organisation to meet its long-term obligations.

7.8 REGULATIONS RELATING TO CASH FLOW STATEMENT

Accounting standards in India are formulated by the Accounting Standards Board (ASB) of the Institute of Chartered Accountants of India (ICAI). Though the

International Accounting Standard Committee has revised the International Accounting Standard-7 (IAS-7) in 1992 and switched over to cash flow statement, Accounting Standard-3 (AS-3) of ASB, which is equivalent to earlier IAS-7, was not revised till 1997. In 1997, ASB of ICAI revised the AS-3 in line with revised IAS-7 and issued an accounting standard on reporting cash flow information (see AS-3 full text given in http://www.icai.org.). However, this standard was not made mandatory immediately in 1997. However, AS-3 was made mandatory for the accounting period starting on or after 1st April 2001 for the following enterprises:

i) Enterprises whose equity or debt securities are listed on a recognized stock exchange in India, and enterprises that are in the process of issuing equity or debt securities that will be listed on a recognized stock exchange in India as evidenced by the board of directors' resolution in this regard.

ii) All other commercial, industrial and business reporting enterprises, whose turnover for the accounting period exceeds Rs. 50 crore.

Since ASB of ICAI took a long time for the introduction of cash flow statements, the SEBI had formed a group consisting of representatives of SEBI, the Stock Exchanges, I C A I to frame the norms for incorporating Cash Flow Statements in the Annual Reports of listed companies. The group has recommended cash flow statements to be supplied by listed companies. SEBI, following the recommendation of the group, has instructed the Governing Board of all the Stock Exchanges to amend the Clause 32 of the Listing Agreement as follows:

"The company will supply a copy of the complete and full Balance Sheet, Profit and Loss Account and the Directors Report to each shareholder and upon application to any member of the exchange. The company will also give a Cash Flow Statement along with Balance Sheet and Profit and Loss Account. The Cash Flow Statement will be prepared in accordance with the Annexure attached hereto".

Cash Flow Statement, as a requirement in the Listing Agreement, has been made effective for the accounts prepared by the companies and listed entities from the financial year 1994-95. Cash Flow Statement, as a requirement of the Listing Agreement, has been made effective for the accounts prepared by the companies listed in stock exchanges from the financial year 1994-95.

Illustration 02

Prepare a cash flow account for Expand Telecommunications Ltd. for the year ended 31-03 2017 from the following information –

Cash Account for the year ended 31-03-2017

Particulars	Amount (Rs.)	Particulars	Amount (Rs.)
Opening Cash balance	175,000	Cash Purchases of Goods	3500,000
Equity shares issued	262,500	Administrative expenses	437,500
Preference shares issued	262,500	Factory expenses	262,500
Cash sales	4025,000	Income tax	87,500
Sale of old machineries	1050,000	Dividend disbursed	262,500
		Loan repaid	700,000
		Closing Cash Balance	525,000
Total	5775,000	Total	5775,000

Solution:

Let us prepare the cash flow statement as per the direct method. Under the direct method, cash receipts from the customers and cash payments to the vendors and employees are disclosed. So, let us prepare the cash flow statement below – Expand Telecommunications Ltd.

Cash Flow Statement of for the year ended 31-03-2017

(A) Cash flow from Operating Activity			Amount (Rs.)
Receipts: Cash Sales from customers		4025,000	
Payments: Cash Purchases		(3500,000)	
Administrative expenses		(437,500)	
Factory expenses		(262,500)	
Income tax		(87500)	
Net Cash from Operating Activities: Total (A)			(262,500)
(B) Cash flow from Investment Activity			
Sale of old machineries		1050,000	
Net Cash from Investment Activities: Total (B)			1050,000

(C) Cash flow from Financing Activity			
Receipts: Equity shares issued		262,500	
Preference shares issued		262,500	
Payments: Loan repaid		(700,000)	
Dividend disbursed		(262,500)	
Net Cash from Financing Activities: Total (C)			(437,500)
Net increase in cash and cash equivalents Total Cash Flow (A+B+C)			350,000
Add: Opening Cash Balance			175,000
Closing Cash Balance			525,000

Illustration 03

Calculate Cash from Operations from the following information:

Profit and loss account for the year ended 31st March, 2005

Particulars	Rs.	Particulars	Rs.
To Purchases	40,000	By Sales	60,000
To Wages	10,000		
To Gross Profit c/d	10,000		
	60,000		60,000
To Salaries	2,000	By Gross Profit b/d	10,000
To Rent	2,000	By Profit on Sale of Building	10,000
To Depreciation on Plant	2,000		
To Loss on Sale of Furniture	1,000		
To Goodwill written off	2,000		
To Net Profit	11,000		
	20,000		20,000

Additional information:

	Balance as on	
	31st March, 2004	31st March, 2005
Stock	20,000	24,000
Debtors	30,000	40,000
Creditors	10,000	15,000
Bills receivable	10,000	16,000
Outstanding expenses	6,000	10,000
Bills payable	8,000	4,000
Prepaid expenses	2,000	1,000

Calculate Cash from Operations.

Solution

Calculation of Cash from operations

		Rs.
Net Profit as per Profit and Loss account		11,000
Add : Non-cash items: (i.e., Items which do not result in outflow of cash)	Rs.	
Depreciation on Plant	2,000	
Loss on sale of Furniture	1,000	
Goodwill written off	2,000	
Increase in Creditors	5,000	
Increase in Outstanding expenses	4,000	
Decrease in Prepaid Expenses	1,000	15,000
		26,000
Less: Non-cash items (i.e., items which do not result in inflow of cash):		
Profit on Sale of Building	10,000	
Increase in Stock	4,000	
Increase in Debtors	10,000	
Increase in Bills receivable	6,000	
Decrease in Bills payable	4,000	34,000
Outflow of Cash from Operations		(–) 8,000

7.9 LET US SUM UP

In this unit we have discussed the purpose of Cash Flow Statement. The main objective of preparing the Cash Flow Statement is to deliver information about cash receipt cash payments, and the difference in cash position out of business activities from the operations, investments, and financing activities of a company during a particular financial year. In other words, the Cash Flow Statements where an organization's cash is being generated, and where its cash is being paid during a particular period of time. The unit also helps to learn the preparation of Cash Flow Statement under Direct Method. The unit also discusses the difference between Cash Flow Analysis and Fund Flow Analysis. The Cash Flow Statements helps the management to analyse the liquidity as well as long term solvency of the business. The main purpose of Cash Flow Statement is to transform the accrual basis income statement to a cash flow statement. On the other hand, Fund Flow Statement helps management about the allocation of resources and shows the operational aspects of the business activities which are not available in Profit and Loss Account and Balance Sheet.

7.10 KEY WORDS

- **Cash Flow:** Movement of cash i.e., cash inflow and cash outflow
- **Cash Flow Statement**: Statement prepared to show the sources and uses of cash between the two balance sheets dates.
- **Cash from Operations**: Net profit adjusted for changes in the current items in addition to the adjustments already made while ascertaining funds from operations.

7.11 FURTHER READINGS

- Srinivasan, N.P & Murugan, M.S.(2011), 'Accounting for Management', S Chand Publishing, India
- Ramachandran, N. & Kakani, R.K. (2011), 'Financial Accounting for Management', McGraw Hill Education
- Bhattacharya, A.K. (2012), 'Financial Accounting for Business Managers',
- Lal, Jawahar. Advanced Management Accounting Text and Cases. S. Chand & Co.,
- New Delhi.
- Khan, M.Y. and P.K. Jain. Management Accounting. Tata McGraw Hill, Publishing

7.12MODEL QUESTIONS

Q 1: Explain the cash concept.

Q 2: Define the cash flow statement and explain how it is different from a fund flow statement.

Q 3: How do you compute cash from financing activities? Q 4: How do you compute cash from operating activities? Q 5: Discuss the purpose of a cash flow statement.

Q 6: Write a brief note on preparation of cash flow statement.

Q 7: From the following Balance Sheet of M/s Electronics Ltd. as on 31.12.2003 and 2004, prepare a Cash Flow Statement'

Liabilities	2003 Rs.	2004 Rs.	Assets	2003 Rs.	2004 Rs.
Equity Share Capital	1,00,000	1,50,000	Goodwill	10,000	5,000
9% Redeemable Preference			Building	1,50,000	2,20,000
Share Capital	50,000	40,000	Plant	80,000	1,00,000
12% Debentures	51,000	69,000	Stock	60,000	75,000
General Reserve	30,000	20,000	Debtors	20,000	17,000
P & L A/c	50,000	70,000	Bills Receivable	8,000	9,000
12% Public Deposits	80,000	1,20,000	Accrued Income	10,000	6,000
Creditors	8,000	10,000	Prepaid Expenses	—	2,000
Bills Payable	6,000	4,000	Cash	40,000	50,000
Outstanding Expenses	3,000	1,000			
	3,78,000	4,84,000		3,78,000	4,84,000

[Ans: Net increase in cash : Rs. 10,000]

Q8: On the basis of the information given in the Balance Sheet of ABC Ltd. prepare a Cash Flow Statement.

Liabilities	2003	2004	Assets	2003	2004
Equity Share Capital	1,50,000	2,00,000	Goodwill	35,000	10,000
12% Debentures	50,000	75,000	Land and Buiding	1,20,000	1,75,000
10% Preference Share Capital	40,000	25,000	Machinery	75,000	1,00,000
General Reserve	30,000	37,500	Debtors	50,000	70,000
Creditors	47,500	42,500	Stock	37,500	25,000
Bills Payable	10,000	20,000	Cash	10,000	20,000
	3,27,500	4,00,000		327,500	4,00,000

[**Ans:** Net increase in cash : Rs. 10,000]

Q9: From the following balance sheets prepare a cash flow statement.

Liabilities	31.12.2003	31.12.2004	Assets	31.12.2003	31.12.2004
Share Capital	2,00,000	250,000	Fixed Assets:		
Reserves	100,000	120,000	Land	300,000	350,000
Profit & Loss A/c	1,20,000	1,50,000	Machinery	2,00,000	2,40,000
Debentures	90,000	1,00,000	Current Assets:		
Accumulated			Inventory	1,00,000	1,30,000
Depreciation	60,000	80,000	Debtors	70,000	50,000
Current Liabilities:			Cash	40,000	60,000
Creditors	40,000	45,000			
Bills Payable	65,000	40,000			
Expenses Outstanding	35,000	45,000			
	7,10,000	8,30,000		7,10,000	8,30,000

Note: Machinery costing Rs. 40,000 (accunulated depreciation Rs. 10,000) was sold for Rs. 35,000

(Ans. : Cash from Operation Rs. 55,000)

Q10: From the following Balance Sheets of Alfa Ltd., prepare Cash Flow Statement

Liabilities	2004	2005	Assets	2004	2005
Equity Share Capital	150,000	2,00,000	Fixed Assets	2,00,000	275,000
Profit & Loss A/c	42,500	55,000	Stock	1,00,000	112,500
Bank Loan	50,000	37,500	Debtors	1,05,000	95,000
Accumulated Depreciation	40,000	67,500	Bill Receivable	40,000	55,000
Creditors	155,000	147,500	Bank	15,000	–
Proposed dividend	22,500	30,000			
	4,60,000	5,37,500		4,60,000	5,37,500

Additional information A piece of machinery costing Rs. 30,000 on which accumulated depreciation was Rs. 7500 was sold for Rs. 15,000.

(**Ans.** Net Decrease in Cash Rs. 15,000)

Q11: The following are the Balance Sheet of M/s. Rao Brother Private Ltd. as of March 2004 and 2005.

Liabilities	2004 Rs.	2005 Rs.	Assets	2004 Rs.	2005 Rs.
Equity Shares	4,000	4,000	Fixed assets	4,100	4,000
12% Redeenable Preference shares	—	1,000	Less : Depreciation	1,100	1,500
				3,000	2,500
Profit and loss a/c	100	120	Sundry Debtors	2,000	2,400
General reserve	200	200	Stock	3,000	3,500
Debentures	600	700	Prepaid expenses	30	50
Creditors	1,200	1,100	Cash	120	350
Provision for taxation	800	1,000			
Bank overdraft	1,250	680			
	8,150	8,800		8,150	8,800

Your are required to prepare a Cash Flow Statement.

(Ans. Cash from Operation Rs. 400, Sources Rs.1,600, Applications Rs. 800)

Q 12: From the following Balance Sheet of M/s Electronics Ltd. as on 31.12.2003 and 2004, prepare a Cash Flow Statement.

Liabilities	2003 Rs.	2004 Rs.	Assets	2003 Rs.	2004 Rs.
Equity Share Capital	1,00,000	1,50,000	Goodwill	10,000	5,000
9% Redeemable Preference			Building	1,50,000	2,20,000
Share Capital	50,000	40,000	Plant	80,000	1,00,000
12% Debentures	51,000	69,000	Stock	60,000	75,000
General Reserve	30,000	20,000	Debtors	20,000	17,000
P & L A/c	50,000	70,000	Bills Receivable	8,000	9,000
12% Public Deposits	80,000	1,20,000	Accrued Income	10,000	6,000
Creditors	8,000	10,000	Prepaid Expenses	—	2,000
Bills Payable	6,000	4,000	Cash	40,000	50,000
Outstanding Expenses	3,000	1,000			
	3,78,000	4,84,000		3,78,000	4,84,000

UNIT 8: FUND FLOW STATEMENT

Structure:

8.0 LEARNING OBJECTIVES

After successful study of this unit, you will be able to:

- Learn about the meaning of Fund Flows statement meaning of Funds. (Onflows and Outflows of Funds).
- Describe the transactions results in flow of funds.
- Ascertain the fund flow statement after the preparation of schedule changes in working capital, fund from operation etc.
- Solve different problems on sources and application of funds – etc.

8.1 MEANING OF FUND FLOW STATEMENT, MEANING OF FUND

Meaning: This statement is an attempt report the flow or movement of funds between various assets and loabilities and owner's Equity during the accounting period. So far smith and Brown is concerned "Funds flow statement is prepared to indicate in summary form, changes (and trends, if prepared regularly) occurring in items of financial position between tow different Balance sheet dates. "Such a statement is prepared to indicate the increase and Utilization of resources of a business during an accounting period. This statement is also know by various after names such as 'statement of sources and Application of Funds', 'where Got and, where gone statement', 'statement of funds generated and Expended etc.

Meaning of 'Funds'

For the purpose of fund flow statement the term 'fund' means 'Net working Capital' also known as 'Net Current Assets' It is defined as the difference between current assets and current liabilities. Thus

Fund = Current Assets – Current liabilities

In view of this definition of 'fund', it becomes necessary to understand the terms of 'current assets', 'current liabilities', 'Non current assets', and Non current liabilities.

Current Assets :- The assets which are converted into cash within an accounting period. It means cash and other assets which are reasonably expected to be realized in cash or sold or consumed during the normal operating cycle of the business.

current assets includes the following:

Cash and bank balances

Accounts receivables i.e. debtors and bill receivables.

Inventories i.e. stock of raw materials, work-in-progress and finished goods.

Inventories Investments or short term investments.

Prepaid expense

Accrued Incomes etc

Current liabilities: It includes all such obligations which are likely to mature within one year, in the normal course of business operations and which are paid out of current assets or by creating current liabilities.

Example:-

Accounts payable, i.e. creditors and bills payable

Outstanding expenses, e.g. rent, wages, commission, etc,

Bank Overdrafts

Incomes received in advanced

Dividends payable

Provision for doubtful debts etc

Now-Current Assets:-

Example:-

Goodwill

Land and building

Plant and Machinery

Furniture and fittings

Long term Investment

Profit and loss A/C (Debit balance)

Preliminary expenses

Patent rights and trademarks etc.

Non-current liabilities

Ex - Share capital - equity and preference

Debenture and long-term loans.

Profit and loss A/C (credit balance)

Provisions and reserve

proposed dividends

share premium account

share for future accounts etc.

8.2 HOW TO JUDGE WHETHER A TRANSACTION RESULTS IN HOW OF FUND OR NOT?

When a transaction results in the increase of fund, such a transaction is said to be a source of fund. On the other hand, if a transaction results in the decrease of fund, such a transaction is said to be an application of fund. A journal entry should be made and the accounts involved should be classified into current transaction belong current category then there in no flow of funds. Similarly, if all the account involved in the transaction belong to non-current category, then also there is no flow of funds. However, a transaction will result in the flow of fund only when one of the accounts involved in the journal entry belong to current category and another to non-current category.

The concept of flow of fund can be summarized as following:

(1) When a transaction involves only current accounts there is no flow of funds.

Ex – (a) Cash Paid to creators: The journal entry will be

Creditors Account Dr.

To cash A/C

This transaction does not result in the flow of funds because both the account involved (creditors and cash) belong to the category of current account. The cash account being an item of current asset decreases and creditors, being a current liability also declares. The new effect of this transaction, therefore, will be no change in the amount of net working capital.

Cash collected from debtors. The Journal entry will be

Cash A/C (Current Account) Dr.

To debtors (Current Account)

In this transaction also, both the accounts (cash and debtors) being to the category of current accounts and hence there will be no flow of funds. the balance of cash will increase and that of the debtors will decrease, leaving the amount of net working capital unchanged. Hence, no flow of funds.

2. When a transaction involves only non-current accounts, then also there is no flow of funds.

Exa –

(a) Shares issued to Vendors for purchase of Land and Building the journal entry will be. Land and Building Account (non-current) As both the accounts involved belong to non-current category, the amount of current asset and current liabilities is not affected at all, thereby keeping the amount of working capital unaffected. This transaction therefore, does not result in the flow of funds.

3. Where a transaction involves a current account and a non-current account the net working capital increases or decreases and then there is a flow of funds.

Exa –

Machinery purchased for cash : Journal entry is :

machinery A/C (Non-Current)Dr.

To Cash A/C (currant)

In this transaction of purchase of Machinery, one account (Machinery Account) belongs to the category of non-currentaccount and the other account. (i.e., Cash Account) belongs to current account category. This transaction reduces the amount of cash and ultimately reduces current assets with this, the net working capital will decrease, thereby resulting in the flow of funds.

Other example:- sales on fixed asset on cash or credit

sale of long term investment

Raised of long term loan

Issue of shares of a premium etc.

Criteria other accounts of revenue nature like rent paid, insurance premium paid etc, transferred to profit and loss a/c and indirectly affecting funds-

Hidden transitions have to be located in order to know their effect on the funds. Relevant accounts should be prepared to find out the hidden information.

8.3 PREPARATION OF FUND FLOW STATEMENT

In order to prepare fund flow statement, it in necessary to find out various 'sources' and 'application' of funds. The various sources and applications of funds are given below in aPerforma of Fund flow statement.

Statement of Sources and Applications of Funds

Sources of Funds:

(a) Issue of share capital
(b) Issue of debentures
(c) Loan from Institutions
(d) State of non current assets and Investements
(e) Funds from operations (profit)

Total Sources

Applications of Funds:

(a) Redemption of preference shares
(b) Redemption of Denatures
(c) Repayment of Loans
(d) Purchases of noncurrent assets
(e) Loss from operation (loss)
(f) Payment of Dividend and Taxes etc. Total Application
Net Increase or Decrease in W.C. (Total soures – Total application)

The funds flow statement may also be prepared in T-form as follows:

Fund flow statement for the period

Sources of Funds	**₹**	**Applications of Funds**	**₹**
1-Issue of Shares		1-Redemption of preference Shares	
2-Issue of Debentures		2-Redemption of debentures	
3-Loans form Institutions		3-Repayment of Loans	
4-Sale of non-current assets		4- Purchase of non-current assets	
5-Funds from operations		5-Payment of Dividend, Taxes	
6-Decrease in working Capital		6-Loss from operations Increase in working capital (B.F)	

The various sources and applications of funds are calculated from the comparative Balance sheet and additional information given. For example, if the share capital has increased form one year to next, it shows source of fund form issue of share. It the question is silent about the nature of issue of share, it may be assumed that shares were issued for cash and the

amount of increase is recorded on the sources side. It applies to both the equity and preference shares. In case of preference shares, there may be a decrease during the period. It means that preference shares were redeemed during the year, unless otherwise stated. It in thus recorded as an application of funds. Similar procedure is follows in respect of other item in the balance sheets.

Sources = Applications or Uses

Increase in Equities + Decrease in Assets) = (Increase in Assets = Decreases in Equities)

8.4 STATEMENT OF CHANGES IN WORKING CAPITAL

This statement is prepared with the help of only current assets and liabilities. It should be noted that such a statement is prepared only from the information given in the Balance Sheet and there is no effect on this statement of any additional information supplied outside the balance sheet. A proforma if such a statement of changes in working capital is given below.

Schedule or Statement of changes in Working Capital

	Previous Year	**Current Year**	**Effects**	**On working Capital**
	₹	**₹**	**Increase (+) ₹**	**Decrease (-)₹**
Current Assets:				
Cash in hand				
Debtors				
Stock				
Prepaid Expenses				
Bills receivable etc				
Total				
Current Liabilities:				
Creditors				
Bills Payable				
Outstanding Expenses etc.				
Total				
Increase or decrease in working capital				

While preparing the statement it should be noted that:

(a) Increase in current assets result in increase (+) in W.C.
(b) Decrease in current assets result in decrease (-) in W.C.
(c) Increase in current liabilities result in decrease (-) in W.C.

(d) Decrease in current liabilities result in Increase (+) in W.C.

8.5 ITEMS REQUIRING SPECIAL ATTENTION

Funds form Operations : Profit from operations is the only item of source while is generated by the internal sources. Profit as shown by the profit and Loss Account does not always correctly represent the amount of fund from business operations. There are certain items which appear in the Profit and Loss Account but do not involve any payment in cash, e.g. depreciation, writing of goodwill and preliminary expenses etc. These type of item do not have any effect on the working capital and are termed as non-fund items. The net profit as shown by the profit and loss account has to be adjusted for these 'non-fund' items so as to arrive at the real fund from operations. The following are the main adjustment:

Add :Generally the following items are added back to Not Profit:

1. Deprecation on fixed assets.
2. Written of fictitious and intangible items.
3. Loss on sale of fixed assets.
4. Appropriation of profit. e.g., general reserve, sinking fund etc.
5. Dividend which in shown before ascertaining profit.

Deduct:

1. Profit on sale of fixed assets
2. Profit on revolution of fixed
3. Non-operating incomes, such as dividend received, interest received, refund of taxes, rental income etc.

Determination of Funds from operations in case of Net Loss It profit and Loss Account shows a net loss, it does not necessarily mean that there is loss from operations. It the 'non-fund' items on the debit side of profited Loss, Account exceed the aggregate of net loss and 'non-fund' items appearing in the credit side of profit and loss Account, the different would represent funds form operations and vice versa. Calculations of funds from operations. Funds form operations may be completed by preparing a statement and them starting with the net profit already calculated and then add and deduct item to arrive at funds from operations. It may be calculating by preparing adjusted profit and Loss Account in T. From as shown below:

Adjusted Profit and Loss Account

Particulars	₹	Particulars	₹

To non-fund items: To – Depreciation To –Depletion To – loss an sale of fixed assets To premium on declamation of debentures To Discount on issue of shares To good will written off To Preliminary expenses To Appropriation of profit: To General reserve To Interim dividend To Taxation Prevision To Net Profit c/d		By net profit b/d By Non-operating incomes: Interest received Dividend received Refund of taxes Profit on sale of non-current assets By Funds from operations (Balancing Figure)	

2. Treatment of provision for Taxation

(a) As a current liability –When provision for taxation is treated as a current liability it appears in statement chanchagesin working capital. In such a case it will not be taken into account for calculating funds from operations and nothing appears on application side of the Funds flow statement on account of taxation.

(b) As a non-current liability –when provision for taxation is treated as a non-current liability, provision created during the year is added back in profit to calculate funds from operations and tax paid during the year is shown as an application of fund in the fund flow statement. It does not appear in the statement changes in working capital.

Treatment of proposed Dividend

(a) **As a current liability –** It appears in the statement of changes in working capital and no adjustment is made in the calculation of funds from operations. It is also not recorded in the funds flow statement as an application.

(b) **As a non-current liability** – when proposed dividend is treated as non-current item it is added back in profit to calculate the funds from operations and dividend actually paid (or payable) is shown as an application of funds in the funds flow statement. It does not appear in the statement changes in working capital.

4**. Treatment of Interim Dividend** – It is shown as an application of fund in the funds flow statement. It is also added back in the net profit for calculating the funds from operations. If not has already been debited to profit and loss account.

8.6 ILLUSTRATIONS AND SOLUTION

Illustrations – 1

From the following Balance sheet of ABCCO. Ltd. prepare a statement of sources and used of funds.

	31. Dec 2021 ₹	**31. Dec 2020 ₹**
Assets:		
Cash in hand and Bank	80,000	40.000
Account receivable	90.000	98.000
Stock	130.000	85.000
Land	40.000	35.000
Long term Investment	10.000	15.000
Capita; and liabilities:		
Equity Capital	200.000	1.50.000
Account Payable	100.000	80.000
General reserve	75.000	60.000

Solution

Statement of sources and used of funds (funds flow statement)

Sources of Funds:	
(a) Increase in capital (2.00.000 –1,50,000)	50,000
(b) Funds from operations (75,000 –60,000) (different in general reserve)	15,000
(c)Sale of investments (15,000 – 10,000)	5000
Total Sources	70,000
Use of Funds: purchase of Land (40.000 – 35.000)	5000
Total Uses	5000
Increase in working Capital (Sources -Uses)	65,000

Illustrations – 2

The following are the summaries of the Balance sheet of XYZ Ltd.

	31.12.2021	31.12.2021
Share Capital	2,00,000	2,60,000
Profit and loss account	39.690	41,220
Reserves	50,000	50,000
Sundry Creditors	39.500	41,135
Bank Overdraft		

Bills Payable	59.150	11,525
Provision for taxation	40.000	50.000
	4,62,480	4,53,880
Goodwill		20,000
Land and Building	113,450	116,200
Plaut and Machinery	1,48,000	1,44,250
Stocks	1,11,040	97,370
Bills receivables	2315	735
Cash	2500	2700
Debtors	85,480	72,625
	4.62.480	4.53.880

Yor are required to prepare statement of changes in working capital, treating provision for taxation as a current liability.

Solution

Statement of Changes in Working Capital

Particulars	**31.12.2023**	**31.12.2022**	**Increase (+) ₹**	**Decrease (-) ₹**
Current Assets:				
Cash	2500	2700	200	-
Debtors	85,175	72,625	-	12,550
Bills receivable	2315	735	-	1580
Stock	1,11,040	97,370	-	13670
Total	2,01,030	1,73,430		
Current Liabilities				
Creditors	39.000	41.135	-	1635
Bills Payable	33,780	11,525	2,22,55	-
Bank Overdraft	59,510	-	59510	-
Provision for Taxation	40,000	50.000	-	10,000
Total (B)	1,72,790	1,02,660		
Working Capital (A-B)	28,240	70,770		
Increase in working Capital	42,530			42,530
	70,770	70,770	81,965	81,965

Illustration 3

During the year 2022 Asha Ltd. earned a profit ₹2,00,000 after adjusting the following

Provision for Bad debt ₹

Depreciation written off	2000
Salaries	10,000
Depreciation written off	15,000
Profit on sale of fixed Assets	14000
Discount on Deburuture written off	20,000
Loss in sale of Investments	2,000
Parliamentary expresses written off	8,000
Proposed dividend	50,000
Transfer to debenture	20,000
Dividend received	5,000

Adjustment Profit and Loss Account

Particulars	**₹**	**Particulars**	**₹**
To Depreciation	15,000	By profit on sale of fixed assets	14,000
To Discount debentures	20,000	By Dividend received	5,000
To loss on investment	2,000	By Funds from operation	2,96,000
To preliminary expresses written off	8,000		
To proposed dividend	50,000	(Balancing Figured)	
To deb. redemption fund	20.000		3,15,000
To Net profit	3,15,000		

Illustration – 4

The following Balance sheet are given:

Liabilities	2021₹	2022₹		2021 ₹	2022₹
Equity Shate Capital	3,00,000	4,00,000	Good Will	1,15,000	90,000
Redemablepref: Capital	1,50,000	1,00,000	Land and Building	2,00,000	1,70,000
General Reserve	40,000	70,000	Plant	8,00,000	2,00,000
Profit and Loss A/C	30,000	48,000	Debtors	1,60,000	2,00,000
Proposed Dividend	42,000	50,000	Stock	77,000	10,9000
Creditors	55,000	83,000	Bills Receivable	20,000	30,000
Bills Payable	20,000	16,000	Cash in hand	15,000	10,000

Provision for Taxation	40,000	50,000	Cash of Bank	10,000	8,000
	6,77,000	8,17,000		6,77,000	8,17,000

It is also given that:

(a) Depreciation of ₹ 20,000 on land and building₹ 10,000 on plant and has been charged in 2022.

(b) Interim dividend of ₹ 20,000 has been paid in 2022.

(c) Income tax ₹35,000 has been paid in 2022.

(d) Prepare statement of sources and Application of funds and statement of changes in working capital.

(Note) provision for taxation is treated as anon current item

Solution

Statement of changes in working Capital

Particulars			**Effects on working capital Increase (+)₹ Decrease (-)₹**	
Current Assets:-				
Debtors	1,60,000	2,00,000	40,000	-
Bills Receivable	20,000	30,000	10,000	-
Stock	77,000	1,09,000	32,000	-
Cash in hand	1,50,000	10,000	-	500
Cash at Bank	10,000	8,000	-	2000
Toral current Assets (A)	2,82,000	3,57,000		
Current Liabilities	55,000	83,000		
Creditors	20,000		-	28,000
Bills Payable	20,000	16,000	4000	-
Total current liabilities (CL)	75,000	99,000		
Working Capital (CA-CL)	20,7000			
Net Increase in working capital (BF)	51,000	2,58,000		51,000
	2,58,000	2,58,000	86,000	86,000

Statement of Sources and Application of Funds

Sources:	₹
(a) Issue of Equity share capital	1,00,000
(b) Sale of building	10,000
(c) Fund from operation	2,18,000
Total Sources	3,28,000
Application	
(a) Redemption of Pret. shares	50,000
(b) Purchase of plant	1,30,000
(c) Dividend paid (i) previous year	42,000
(ii) Interim dividend	20,000
(d) Payment of tax	35,000
Total Applications	2,77,000
Net Increase in working capital (Sources Application)	51,000

In order find out fund from operations and other hidden transactions the following accounts are prepared.

Land and Building Account

	₹		₹
To Balance b/d	2,00,000	By Depreciation	20,000
		By sale (source) B. fig	10,000
		By Balance c/d	1,70,000
	2,00,000		2,00,000
		Plant Account	
	₹		₹
To Balance b/d	80,000	By Depreciation	10,000
	1,30,000	By Balance c/d	2,00,000
	2,10,000		2,10,000

Provision for Taxation A/C

	₹		₹
To cash (Application)	35,000	By balance b/d	40,000
To Balance c/d	50,000	By profit and Loss A/C (B.F)	45,000
	85,000		85,000

Computation of Funds from operations

	₹	₹
Profit as per profit and loss A/C (48000-30000)		18,000
Add Deprecation (20,000 + 10,000)	30,000	
goodwill written off	25,000	
Transfer to General Reserve	30,000	
Proposed dividend	50,000	
Interim dividend	20,000	

Provision for Tax	45,000	2,00,000
Funds from Operations		2,18,000

8.7 ADVANTAGES AND USES OF FUND FLOW STATEMENT

1**. Guide proper use of available funds**: For the continued financial health, it is necessary to use available working capital carefully and property. The funds flow statement shows up boldly how the funds made available in a year were used.

2. Acts as a basic for financial plan and budgeting. The funds flow statement can be used easily as a basic for preparing financial plans for the coming period on an estimated basis, it becomes the financial budget for the next year.

3. It gives early warning of coming financial dangers. To judge whether a firm faces any danger of becoming sick, i.e. of facing financial difficulties, it is essential to know the amount to funds generated by operations i.e. the inflow from operations.

4. It reveals the net result of business operations during the year in terms of cash.

5. Helps in borrowing Banks and other financial institutions like IDBI, SFC's etc, like to satisfy themselves about the ability of the company to repay the loans. Before lending, these institutions like to see projected funds flow statements which indicates ability or otherwise of the company to pay off the loan as per the terms of repayment.

8.8 KEY TERMS

- Balance Sheet and profit and loss A/C – Two most important financial statements.
- Sources of fund – Inflow of funds to an organisation Application of funds –Out flows funds goes out from an organisation.
- Funds means working capital
- **Net working capital** = Current assets – Current liabilities

8.9 REVIEW QUESTIONS

1. What is fund flow statement? How it is prepared?
2. What is the statement changes in working capital? Draw a statement with imaginary figures.
3. How funds from operation isascertained?
4. In which why dividend, provision for taxation are treated in fund flow statement.

Block-3

Absorption and Marginal Costing

Unit 9: Introduction to Types of Costing

Unit 10: Absorption Costing

Unit 11: Marginal Costing

Unit 12: Use of Costing For Decision Making

UNIT 9: INTRODUCTION TO TYPES OF COSTING

Structure

9.0 LEARNING OBJECTIVES

After going through this unit, you will be able to

- Describe the meaning and features of absorption costing
- Discuss the ascertainment of income under absorption costing
- Outline the advantages and disadvantages of absorption costing
- Know the impact of fixed cost on cost of production

9.1 MEANING

➢ **Meaning of Costing**

Costing is a technique and process of ascertaining costs. This technique consists of principles and rules which govern the procedure of ascertaining the cost of products and services. The process of costing include routines of ascertaining costs by following different techniques like historical or conventional costing, standards costing.

➢ **Meaning of Cost Accounting**

Cost Accounting is the classifying, recording the appropriate allocation of expenditure for the determination of the costs of products or services, and for the presentation of suitably arranged data for purposes of control and guidance of management. It includes the ascertainment of the cost of every order, job, contact, process, service or unit as may be appropriate. It deals with the cost of production, selling and distribution. It is thus the provision of such analysis and classification of expenditure as will enable the total cost of any particular unit production or service to be ascertained with reasonable degree of accuracy and the same time to disclose exactly how such total cost is constituted (i.e. the value of material used, the amount of labour and other expenses incurred) so as to control and reduce its cost. According to Wheldon, "Cost accounting is the application of accounting and costing principles, methods and techniques in the ascertainment of costs and the analysis of saving/or excess cost incurred as compared with precious experience or with standards". Thus, cost accounting relates to the collection, classification, ascertainment of budgets and standard costs and actual cost of operations, processes, departments or products and the analysis of variances, profitability and social use of funds.

Thus, cost accounting has the following features:

i) It is a process of accounting for costs.
ii) It records income and expenditure relating to production of goods and service.
iii) It provides information on cost of every product, job work order, process or operation of the organisation.
iv) It provides statistical data on the basic data on the basis of which future estimates are prepared and reduction.
v) It is concern with cost ascertainment, cost presentation, cost control and cost reduction.
vi) It establishes budgets and standards so that actual cost may be compared to find out deviations or variances.
vii) It involves the presentation of right information to the right person at the right time so that it may be helpful to management for planning, evaluation of performance, control and decision making.

9.2 TYPES OF COSTING

Following are the main types or techniques of costing for ascertaining costs:

9.2.1 UNIFORM COSTING

Uniform costing is a systematic and standardized approach to costing adopted by organization within a particular industry or sector. It involves the use of common accounting principle, method, and procedures to facilitate comparison and analysis of costs among different entities. The primary objective of uniform costing is to bring consistency and uniformity in cost accounting practices, enabling organization to make information decisions, enhance competitiveness, and streamline operations.

1. **Key Components of Uniform Costing:** Common Accounting Principle: Uniform costing relies on the adoption of consistent accounting principles across all participating organizations. This includes the use of the same cost classification, valuation methods, and accounting treatments. Standardization ensures that cost data are comparable and can be used for meaningful analysis.
2. **Standardization of Costing Method:** Organizations employing uniform costing adhere to standardized costing methods. This includes the uniform application of specific techniques such as job costing, process, or activity-based costing. Standardization ensures that cost data are generat4ed in a systematic ad comparable manner.
3. **Common Costing Period:** A crucial aspect of uniform costing is the establishment of a common costing period. This may be monthly, quarterly, or annually. Having a uniform thime frame for cost accumulation facilitates timely comparison and analysis of cost data among different entities within the industry.

Advantages of Uniform Costing:

1. **Facilitates Comparison:** Uniform costing enables organizations to compare their cost structures with industry peers. This comparison provides valuable insights into cost efficiency, identifies areas for improvement, and fosters healthy competition.
2. **Cost Control and Monitoring:** Standardization of cost accounting practices enhances the ability of organizations to control and monitor their costs effectively.

This, in turn, contributes to better financial management and sustainable business operations.

3. **Promotes Efficiency:** By adopting common accounting principles and methods, Uniform costing promotes efficiency in cost management. Organization can focus on optimizing process and reducing wastage, leading to improved overall operational efficiency.
4. **Enhances Decision-Making :** The availability of standardized and comparable cost data empowers management to make informed decisions. Whether related to pricing strategies, product mix, or resources allocation, uniform costing provides a sold foundation for strategic decision-making.

Implementation Challenge:

1. **Resistance to Change**: Implementing uniform costing may face resistance from organizations accustomed to their existing cost accounting practices. Overcoming this resistance requires effective communication and education on the benefits of uniform costing.
2. **Differing Organizational Structures:** Organizations within an industry may have diverse structures, making it challenging to implement uniform costing seamlessly. Adjustments and customization may be necessary to accommodate these differences without compromising standardization.
3. **Data Accuracy and Reliability :** The success of uniform costing relies and accuracy and reliability of cost data. Ensuring that organizations maintain high standards of data integrity is crucial for the effectiveness of the uniform costing system.

Case Study: The Apparel Industry and Uniform Costing:

Consider the apparel industry, where various manufacturers produce similar products. Implementing uniform costing allows companies to compare production costs, identify cost drivers, and enhance competitiveness. Common accounting principles, standardized costing methods, and a shared costing period enable a comprehensive analysis of cost structures.

Conclusion:

Uniform costing is a powerful tool that promotes consistency, efficiency, and informed decision-making within industries. While challenges exist in its implementation, the benefits far outweigh the difficulties. By fostering a standardized approach to cost accounting, uniform costing contributes to the overall growth and sustainability of organizations within a specific sector. As industries continue to evolve, the adoption of uniform costing can play a pivotal role in navigating the complexities of modern business environments.

9.2.2 MARGINAL COSTING

According to CIMA Terminology Marginal Costing is the ascertainment of marginal costs and of the effect on profit of changes in volume or type of output by differentiation between fixed costs and variable costs. In this technique of costing which presents management the required information enabling it to measure profitability of an undertaking by considering

behaviour of costs. It is not a distinct method of ascertainment of costs such as process or job costing but a technique in which only variable costs are charged to operations, processes or products, leaving all indirect costs to be written off against profits in the period in which they arise. It is clear form the above that only variable costs form part of product cost in the technique of marginal costing because only variable costs are changed if output in increased or decreased and fixed costs remain the same.

Marginal costing is different from direct costing. Direct costing is the practice of charging all direct costs to operations, processes or product, leaving all indirect costs to be written off against profit in the period in which they arise. Thus, in direct costing some fixed costs could be considered to be direct costs in appropriate circumstances but fixed cost in never taken in marginal cost.

Features of Marginal Costing

Following are the main features of Marginal Costing:

(i) It is a technique of costing which is used to ascertain the marginal cost and to know the impact of variable cost on the volume of output.
(ii) All costs are classified into fixed and variable cost on the basis of variability. Even semi fixed in segregated into fixed and variable cost.
(iii) Variable cost alone are charged to production. Fixed costs are recovered from contribution.
(iv) Fixed costs are written off and charged to Statement of Profit & Loss for the period during which they are incurred.
(v) Valuation of stock of work in progress and finished goods is done on the basis of marginal cost.
(vi) Selling price is based on marginal cost plus the contribution.
(vii) Profit is calculated by deducting marginal cost and fixed cost from sales.
(viii) Cost Volume Profit(or Break Even) Analysis, is one of the integral part of marginal costing.
(ix) The profitability of product/department is based on contribution made available by each product/department.
(x) It involv4es the techniques of both cost recording and cost reporting.

9.2.3 STANDARD COSTING

It is the preparation of standard costs and applying them to measure the variations from actual costs and analysing the causes of variations with a view to maintain maximum efficiency in production. It is a technique which uses standards for costs and revenue s for the purpose of control through variance analysis.

From the definition given above, it is clear that the technique of standard costing may comprise:

- **Ascertainment of standard costs** under each element of costs i.e., material, labour and overhead.
- Measurement of **actual costs.**

- **Comparison** of the actual costs with the actual costs to find out the variances.
- **Analysis of variances** for the purpose of ascertainment of reasons of variances for taking the appropriate action where necessary so that maximum efficiency maybe achieved.

Standard costing is a technique which is complimentary to the actual costing or historical costing system. Standard costs serve as yardsticks against which actual costs are compared to know the reasons of inefficiencies. Therefore, actual costing system cannot be ignored even if standard costing system is adopted.

The system of standard costing can be **useful** in all types of industries, but it is more commonly used in industries producing standardised product which are repetitive in nature. Thus, standard costing is more widely applied in process and engineering industries and is not suitable for job order industries. Even in jobbing industries where jobs differ from each other, there is a considerable scope for the use of this system of costing. Through the product in such industries might not be of a repetitive and standard nature, still the operations performed for completion of the jobs, would be of a repetitive nature and standard can be laid down for the operations performed. Standard cost of the job can be ascertained by adding up the standard cost of the operation envolved in the job. Comparison of the actual costs and standard cost of the operations will be helpful in the controlling the cost of the operations and therefore, of job cost too.

Distinction Between Historical Costing And Standard Costing

	Historical Costing	*Standard Costing*
• **Ascertainment of Cost**	Costs are ascertained after their incurrence i.e. based on actual costs.	Cost are predetermined.
• **Yardstick**	It does not provide any yardstick against which efficiency of performance can be measured.	It provides predetermined cost as a yardstick to measure actual performance.
• **Availability of Reports**	These costs are available too late to correct inefficiencies.	In it reports efficiency of variance helps in taking immediate action to correct the position
• **Data of Price Quotation**	Under it, costing data is obtained too late for the purpose of price quotations, etc.	In it, price can be quoted on the basis of predetermined costs.
• **Cost Control**	It cannot be used for cost control.	It is used for cost control.
• **Expensive System**	It is comparatively an expensive system.	It is not so expensive system.

9.2.4 HISTORICAL COSTING :

Historical costing is an accounting method used to determined the value of an asset or liability based on its original cost at the time of acquisition. This method is widely used in financial accounting to record and report financial transactions and is considered one of the

most straightforward approaches. In this essay, we will explore the concept of historical costing, its advantages and disadvantages, and it relevance in modern accounting practice.

Historical Costing: A Conceptual Overview

Historical costing is rooted in the principle of conservatism, which suggests that financial statements should reflect a cautious approach by recording transactions at their original cost rather than their market value. Under this method, assets are initially recorded at the historical cost, which includes the purchase price and any additional costs directly attributable to bringing the asset to its intended use.

For example, if a company purchases a piece of machinery for $50,000 and incurs an additional $ 5,000 in transportation and installation costs, the historical cost of the machinery would be recorded as $55,000.

Advantages of Historical Costing

1. **Simplicity and Objectivity:** Historical costing is a straightforward method that provides a clear and objective basis for recording transactions. The original cost is usually documented in invoices and other financial records, making it easy to determine.
2. **Consistency:** This method promotes consistency in financial reporting. Once an asset is recorded at its historical cost, subsequent financial statements maintain this cost unless there are specific events, such as impairment or depreciation, that require adjustments.
3. **Stability:** Historical costing contributes to financial stability by avoiding frequent fluctuations in the reported values of assets and liabilities. This stability is particularly beneficial for long-term planning and decision-making.

Disadvantages of Historical Costing

1. **Ignoring Changes in Historical Costing Value:** One significant criticism of historical costing is its failure to account for changes in market values. Assets may appreciate or depreciate over time, and historical costing does not reflect these fluctuations, potentially leading to distorted financial statements.
2. **Impact of Inflation:** In periods of inflation, historical costing tends to underestimate the true economic value of assets. This can be problematic for business, as it may not accurately represent the purchasing power of their capital.
3. **Limited Relevance:** Critics argue that historical costing provides limited relevance, especially in industries where the market value of assets is more dynamic and critical for decision-making. This limitation is particularly evident in the valuation of financial instruments and certain intangible assets.

Relevance in Modern Accounting

While historical costing remains a foundational concept in accounting, modern accounting practices have introduced alternative method to address its limitations. Fair value

accounting, for instance, seeks to value assets and liabilities based on their current market prices, offering a more dynamic approach to financial reporting.

However, historical costing is still widely use, particularly for tangible assets with stable market values. It serves as baseline for various financial matrices and is essential for tax and regulatory compliance.

9.2.5 DIRECT COSTING

In direct costing, costs are categorized into two main types: direct costs indirect costs. Direct costs are those that can be directly traced to a specific product or service , while indirect costs are incurred for the overall operation of a business and cannot be easily assigned to specific products. The focus of direct costing is primarily on direct costs, making it a valuable tool for decision-making and performance.

The key components of direct costing include:

1. **Direct Costs:**
   - **Direct Material:** These are the raw materials that can be directly traced to a product. For example, the cost of wood in manufacturing furniture.
   - **Direct Labour:** The wages of employees directly involved in the production process. This includes workers on the assembly line or directly contributing to the creation of a product.
2. **Variable Manufacturing Overhead:**
   - This includes costs that vary with the level of production but are not directly tied to specific units. Examples include utilities, indirect materials, and maintenance costs.
3. **Fixed Manufacturing Overhead:**
   - Unlike variable manufacturing overhead, fixed manufacturing overhead remains constant regardless of the production lever. Examples include rent for the production facility, salaries of production supervisors, and depreciation of manufacturing equipment.\
4. **Period Costs**
   - These are not-manufacturing costs that are expensed during the period in which they are incurred. Examples include selling and administrative expenses, such as salaries of sales staff and office rent.

The direct costing approach distinguishes between fixed and variable costs, providing a clearer understanding of the cost structure and helping in the calculation of the contribution margin. The contribution margin is the difference between total sales revenue and variable costs, representing the amount available to cover fixed costs and contribute to profit.

Advantages of Direct Costing:

1. **Simplicity and Clarity**:
   - Direct costing is straightforward and easy to understand. It focuses on separating variable costs from fixed costs, providing a clear view of how costs behave at different levels of production.

2. **Decision-making:**
   - It aids in decision-making by providing information of the contribution margin. Managers can assess the impact of production volume changes on profitability and make informed choices about pricing, product lines, and resource allocation.
3. **Performance Evaluation:**
   - Direct costing can be useful for evaluating the performance of different product lines or departments. By isolating variable costs, managers can assess the relative profitability and efficiency of various segments of the business.
4. **Inventory Valuation:**
   - Direct costing is commonly used for valuing inventory in certain industries. It values inventory at variable production costs, providing a more accurate reflection of the current market value.

5. **Incomplete Cost Picture:**
   - Excluding fixed manufacturing costs from product costs may result in an incomplete picture of the true cost of the true cost of production. Fixed costs are incurred to support the overall production capacity and are essential for long-term decision-making.

6. **Profit Fluctuations:**
   - Since fixed manufacturing costs are expenses in the period incurred, profits can fluctuate with changes in production level. This can lead to variations in reported profitability that may not accurately reflect the economic reality of the business.

9.2.6 ABSORPTION COSTING

Absorption costing is a conventional technique of ascertaining cost. It is the practice of charging all costs both variable and fixed to operations, processes or product and is also known as "full costing" technique. It is the oldest and widely used technique of ascertaining cost. Under this technique of costing, costing, cost is made up of direct costs plus factory overhead costs absorbed on some suitable basis. Under this technique, cost per unit remains same only when the level of output remains same from time to time. But the level of output cannot remains same from time to time and so does the cost per unit because of fixed costs remaining same inspite of changes in the level of output. The change in cost per unit with a change in the level of output in absorption costing technique poses a problem to the management in taking managerial decisions. Absorption costing is useful if there is only one product , there is no inventory and overhead recovery rate is based on normal capacity instead of actual level of activity. Two distinguishing features of absorption costing are that fixed factory expenses are included in (i) unit cost and (ii)inventory value.

Ascertainment of Profit under Absorption Costing

Under this technique of costing the following proforma is used for the ascertainment of profit.

INCOME STATEMENT

Sales	Rs.	Rs.
Less : Cost of Goods Manufactured:		XXX
Direct Material	XXX	
Direct Labour	XXX	
Factory Overhead:		
Variable	XXX	
Fixed (at actual production basis)	XXX	
Add : Value of Opening Stock	XXX	
Less : Value of Closing Stock at Current Cost	XXX	
Add : Underabsorption or Less : Overabsorption of	XXX	
Fixed Factory Overheads	XXX	
Gross Profit		
	XXX	XXX
Less : Administration, Selling & Distribution Expenses :		
Fixed		
Variable	XXX	
	XXX	XXX
Net Income or Profit		XXX

ILLUSTRATION 1. Following date relate to XYZ company :

Normal capacity 40,000 units per moth

Variable cost per unit Rs.6.

Actual production 44,000 units.

Sales 40, 000 unit @ Rs. 15 per unit.

Fixed manufacturing overheads Rs.1,00,000 per month or Rs.2.50 per unit at normal capacity.

Other fixed expenses Rs.2,40,000 per month.

Prepare Income Statement under absorption costing.

Solution

INCOME STATEMENT

	Rs.	Rs.
Sales (40,000 X Rs.5)		6,00,000
Less : Cost of goods manufactured :	2,64,000	
Variable cost @ Rs.6 per unit for 44,000 units	1,10,000	
Fixed manufacturing overheads @ Rs.2.50 for 44,000 units.	3,74,000	
Less : Closing inventory (4,000/44,000 X Rs.3,74,000)	34,000	
Less : Overabsorption of fixed manufacturing overheads (Rs. 1,10,000-Rs.1,00,000)	3,40,000	
	10,000	
		3,30,000
Gross Profit		2,70,000

Less : Other fixed expenses		2,40,000
Net Income		30,000

Advantages of Absorption Costing

Following are the main advantages of absorption costing.

(i) It suitably recognises the importance of including fixed manufacturing costs in product cost determination and framing a suitable pricing policy. In fact all costs (fixed and variable) related to production should be charged to unit manufactured. Price based on absorption costing ensures that all costs are covered. Prices are well regulated where full cost is the basis.

(ii) It will show correct profit calculation in case where production is done to have sales in future (e.g., seasonal sales) as compared to variable costing.

(iii) It helps to conform with accrual and matching concepts which require matching cost with revenue for a particular period.

(iv) It has been recognised by various bodies as FASB(USA), ASC (UK), ASB (India) for the purpose of preparing external reports and for valuation of inventory.

(v) It avoids the separation of costs into fixed and variable elements which cannot be done easily and accurately.

(vi) It discloses inefficient or efficient utilisation of production resources by indicating underabsorption or overabsorption of factory overheads.

(vii) It helps to make the managers more responsible for the costs and services provided to their centres/ departments due to correct allocation and apportionment of fixed factory overheads.

(viii) It helps to calculate the gross profit and net profit separately in income statement.

Limitations of Absorption Costing

Following are the main limitations of absorption costing:

1. **Difficulty in comparison and control of cost.** Absorption costing is dependent on level of output ; so different unit costs are obtained for different levels of output. An increase in the volume of output normally results in reduced unit cost and a reduction in output result in an increased cost per unit due to the existence of fixed expenses. This makes comparison and control of cost difficult.
2. **Not helpful in managerial decision.** Absorption costing is not very helpful in taking managerial decisions such as selection of suitable product mix, whether to buy or manufacture, whether to accept the export order or not, choice of alternatives, the

minimum price to be fixed during the depression, number of units to be sold to earn a desired profit etc.

3. **Cost vitiated because of fixed cost included in inventory valuation.** Under absorption costing, a portion of factory fixed overhead cost is carried forward to the next period because closing stock is valued at cost of production which is inclusive of fixed cost.
4. **Fixed cost inclusion in cost not justified.** Many accountants argue that fixed manufacturing, administration and selling and distribution overheads are period costs and do not produce future benefits and, therefore, should not be included in the cost of product.
5. **Apportionment of fixed overheads on arbitrary method.** The validity of product costs under this technique depends on correct apportionment of overhead costs. But in practice many overhead costs are apportioned by using arbitrary methods which ultimately make the product costs inaccurate and unreliable.
6. **Not helpful for preparation of fixable budget.** under absorption costing no distinction is made between the fixed and variable costs. It is not possible to prepare flexible budget without making the decision.

9.3 METHOD OF COSTING

Method to be used for the ascertainment of cost of production differ from industry to industry. It primarily depends on the manufacturing process and also on the method of measuring the departmental output and finished products. Basically, there are two methods of costing viz : (i) Specific Order Costing (or Job/Terminal Costing) and (ii) Operation Costing (or Process or Period Costing)

Specific Order Costing is the category of basis costing methods applicable where the work consists of separate jobs, batches or contracts each of which is authorised by specific order or contact. Job costing, batch costing and contract costing are included in this category.

Operation Costing is the category of basic costing methods applicable where standardized goods or services result from a sequence of repetitive and more or less continuous operations or process to which costs are charges before being averaged over unit produced during the period.

All these methods are discussed briefly as under:

(1) **Job Costing.** When this method, costs are collected and accumulated for each job, work order or project separately. Each job an be separately identified; so it becomes essential to analyse the cost according to each job. A job card is prepared for each job for cost accumulation. This method is applicable to printers, machine tool manufactures, foundries and general engineering workshops.

(2) **Contract Costing.** when the job is big and spread over long period of time, the method of contract costing is used. A separate account is kept for each individual contract. This method is used by builders, civil engineering contractors, constructional and mechanical engineering firms etc.

(3) **Batch Costing.** This is an extension of job costing. A batch may represent a number of small orders passed through the factory in batch. Each batch is treated as a unit of cost and separately coasted. The cost per unit is determined by dividing the cost of the batch by the number of units produced in a batch. This method is mainly applied in biscuits manufacture, garments manufacture and spare parts and component manufacture.

(4) **Process of Costing.** This is suitable for industries where production is continuous, manufacturing is carried on by distinct and well defined processes, the finished product of one process becomes the raw material of the subsequent process, different products with or without by-products are produced simultaneously at the same process and products produced during a particular process are exactly identical. As finished products are obtained at the end of each process, it will be necessary to ascertain not only the cost of each process but also cost per unit at each process. A separate account is opened for each process to which all expenditure incurred thereon is charged. The cost per unit is obtained by averaging the expenditure incurred on the process during a certain period. Hence, this is known as average costing. as the products are manufactured in a continuous process, this is also known as continuous costing. Process costing is generally followed in Textile Industries, Chemical Industries, Tanneries, Paper Manufacture etc.

(5) **Unit or Output Costing.** this is suitable for industries where manufacture is continuous and units are identical. This method is applied in industries like mines, quarries, oil drilling, breweries, cement works, brick works etc. In all these industries there is natural or standard unit of cost. For example, a barrel of beer in breweries, a tone of coal in collieries, one thousand of bricks in brickworks etc. The object of this method is to ascertain the cost per unit of output and the cost of each item of such cost. Here cost accounts take the form of cost sheets prepared for a definite period. The cost per unit is determined by dividing the total expenditure incurred during a given period by the number of units produced during that period.

(6) **Service (or Operating) Costing**. This is suitable for industries which render services as distinct from those which manufacture goods. This is applied in transport undertakings, power supply companies, municipal services, hospitals, hotels etc. This method is used to ascertain the cost of services rendered. There is usually compound unit in such undertakings, e.g. tone-kilometre (transport undertaking), kilowatt-hour (power-supply) and patient day(hospital).

(7) **Farm Costing**. it helps in calculation of total cost and per unit cost of various activities covered under farming. Farming activities cover agriculture, horticulture, animal husbandry (i.e., rearing of livestock's). Poultry farming, pisciculture (i.e., rearing of fish), dairy, sericulture (i.e., silkworm breeding), nurseries for growing and selling of seedlings and plants and rearing of fruits and flowers. Farm costing helps to improve the farming practices to reduce cost of production, to ascertain the profit on each line of farming activity which ensures better control by management and to obtain loans from banks and other financial institutions as they give loans on the basis of proper cost accounting records.

(8) **Multiple Operation Costing**. Multiple operation method of manufacture consists of a number of distinct operations. It refers to conversion cost i.e., cost of converting the raw materials into finished goods. This method takes into consideration the rejections in each operation for calculating input units and cost. The different operations in machine screw are stamps, knurl, thread and trim. The cost per unit is determined with reference to final output.

(9) **Multiple Costing**. It represents the application of more than one method of costing in respect of the same product. This suitable for industries where a number of component parts are separately produced and subsequently assembled into a final product. In such industries each component differs from the others as to price, material used the process of manufacture undergone. So it will be necessary to ascertain the cost of each component. For this purpose, process costing may be applied. to ascertain the cost of the final product batch costing may be applied. this method is used in factories manufacturing cycles, automobiles, engineers, radios, typewriters, aeroplanes and other complex products. This method has been dropped from the latest CIMA Terminology.

Following table shows the method of costing suitable for different industries:

Method of Costing	**Industries**
Job Costing	Printing press, machine tool manufacturers, foundries, general engineering workshop, repair shops, interior designing, etc.
Contract Costing	Building firms, construction works, civil engineering contractors, mechanical engineering firms, ship building firms, architects, etc.
Batch Costing	Biscuit manufacturing, garment manufacture, spare parts and component manufacture, bakeries, toy manufacturing, etc.
Process Costing	Textile industries, chemical industries, tanneries, paper manufacturing, soft drink manufacturing, soap making, oil refining, distillation works, food products, canning, etc.
Output of Unit Costing	Mines, quarries, oil drilling, breweries, cement works, brick works, flour mills, milk dairies, etc.
Service(or Operating) Costing	Transport undertakings, power supply companies, gas supply, water supply, hospitals, hotels, educational institutions, cinemas, cafes, municipal services, etc.
Farm Costing	Agriculture, horticulture, animal husbandry, poultry farming, pisciculture(rearing of fish), sericulture (silk worm breeding), nurseries for plants, etc.
Multiple Costing	Agriculture, horticulture, animal husbandry, poultry farming, pisciculture(rearing of fish), sericulture(silk worm breeding), nurseries for plants, etc.
Multiple Costing Multiple Operation Costing	Cycle manufacturing, engines, automobiles, radios, typewriters, computers, printers, television manufacturing, refrigerators. Leather, engineering, spare parts, etc.

9.4 LET US SUM UP

Costing is a technique and process of ascertaining costs. This technique consists of principles and rules which govern the procedure of ascertaining the cost of products and services.

Cost Accounting is the classifying, recording the appropriate allocation of expenditure for the determination of the costs of products or services, and for the presentation of suitably arranged data for purposes of control and guidance of management. It includes the ascertainment of the cost of every order, job, contact, process, service or unit as may be appropriate. It deals with the cost of production, selling and distribution. It is thus the provision of such analysis and classification of expenditure as will enable the total cost of any particular unit production or service to be ascertained with reasonable degree of accuracy and the same time to disclose exactly how such total cost is constituted (i.e. the value of material used, the amount of labour and other expenses incurred) so as to control and reduce its cost.

9.5 REVIEW QUESTIONS

Q1. What is direct costing? Explain its advanatges and disadvantages
Q2. Explain the Methods of costing
Q3. Discuss the advantages of standard costing and marginal costing.

UNIT-10: ABSORPTION COSTING

Structure

10.0 LEARNING OBJECTIVES

After going through this unit, you will be able to

- Describe the meaning and features of absorption costing
- Discuss the ascertainment of income under absorption costing
- Outline the advantages and disadvantages of absorption costing
- Know the impact of fixed cost on cost of production

10.1 INTRODUCTION

Absorption costing also known as full Costing is the total cost technique. It is the conventional and most widely used technique of ascertaining cost. CIMA, London defines absorption costing as the practice of charging all costs both variable and fixed to operations, processes or products." Under this technique, product cost is made up of all direct costs plus fixed factory overhead at a predetermined rate on the basis of normalcy capacity. The administration, selling and distribution overheads are treated as period costs, and hence, are written off against the income for the period in which they are incurred.

10.2 OBJECTIVE OF ABSORPTION COSTING

The management is interested that every product should bear its total cost, be it fixed or variable cost and leave something towards profits towards return on investment. In the absence of profits, In the long run, management is not interested in continuing that product. Management wants to ensure a reasonable return on the investment made. Absorption costing facilitates that objective. The objective of management, under absorption costing, is that each product recovers its full cost and leaves something towards profit as a return on investment.

All products may not give equal contribution. Selling price of some products may cover the variable cost component, fully, while they may not cover the fixed cost component, totally. Though full costs are not recovered, in the short run, management continues production as they leave a certain amount in the form of contribution that would cover the fixed costs, at least, partly. This is only a short-term approach. In the long - run, every firm wants to recover full costs, both fixed and variable, and leave something towards planned profits, which is the objective of every firm to maximize.

10.3 DIFFERENCE BETWEEN MARGINAL COSTING & ABSORPTION COSTING

Basis	Marginal Costing	Absorption Costing
1. Fixed Costs	Fixed costs are considered as period costs. Fixed costs are ignored for product costing and inventory valuation.	Fixed costs are considered as product costs. Fixed costs are considered for product costing and inventory valuation.
2. Profitability	P/V Ratio of different products judges profitability of different products.	Profitability is influenced by recovery of full costs.
3. Apportionment of fixed costs	Fixed costs are not apportioned to products. They are charged to contribution from different products.	Subjective apportionment of overheads is made to different products. In other words, the apportionment is arbitrary and not exact.
4. Presentation of Data	Presentation of Data is given highest importance to highlight contribution of each product and total contribution of the firm.	Presentation of Data is on conventional pattern. Net profit is determined, after deducting fixed overheads.

10.4 PRESENTATION OF DATA

	Absorption Costing		Marginal Costing		
Sales:		xxx	Sales:		xxx
Less:	Manufacturing cost of goods sold (including fixed manufacturing overheads)		*Less:* **Variable cost** Manufacturing		xx
Less:	Administration and Selling Expenses	xxx	*Less:* Administration and Selling Expenses		xx
	Profit	xxx	Contribution		xxx
			Less: **Fixed cost**		
			Manufacturing	xx	
			Administration	xx	
			Selling	xx	xxx
			Profit		xxx

10.5 DISTINGUISHINGFEATURES OR CHARACTERISTICS OF ABSORPTION COSTING

The basic features of absorption costing are as follows:

10.5.1 All variable manufacturing costs and fixed factory overheads are treated as product costs and hence charged to products, processes or operations.

10.5.2 All administration, selling and distribution overheads are treated as period costs, and hence are written off against the profits of the period in which they are incurred.

10.5.3 As fixed factory overheads are included in unit cost, the value of closing inventory includes fixed factory/production overheads.

10.5.4 Under absorption costing, cost per unit remains the same only if there is no change in the level of output. However, in case the level of output changes, the cost per unit also changes because of the presence of fixed costs.

10.6 ASCERTAINMENT OF INCOME UNDER ABSORPTION COSTING

All the costs are divided into three categories under absorption costing as manufacturing, selling and administrative cost.

- Category 1: Firstly, all the manufacturing costs both fixed and variable are deducted from the sales revenue to get gross margin/gross profit on sales in income statement.
- Category 2: Secondly, the selling and administrative expenses both fixed and variable are deducted from the gross margin/gross profit to arrive at the net operating income.
- Category 3: The fixed factory or manufacturing overheads are charged to the units produced on the basis of predetermined fixed manufacturing overhead rate. The following formula is used to calculate the fixed manufacturing overhead rate.

= (Standard fixed manufacturing overheads / Normal level of output)

If the actual level of output is more or less than the normal level of output, adjustments are made for the level of output differences. If the actual level of output is more than normal level of output, the amount of over absorption is subtracted from the total cost of goods manufactured and sold. If the actual level of output is less than normal level of output, the amount of under absorption is added with the cost of goods manufactured and sold.

PROFORMA OF INCOME STATEMENT UNDER ABSORPTION COSTING

Sales		xxx
Less: Manufacturing cost		
1. Variable Cost		
Direct Material Cost	xxx	
Direct Labour Cost	xxx	
Variable Manufacturing overhead	xxx	
2. Fixed factory (Manufacturing) overhead	xxx	
Cost of goods manufactured	xxx	
Add: Opening Stock	xxx	
Cost of goods available for sale	xxx	
Less: Closing stock	xxx	
Cost of goods sold	xxx	
Add: Under absorption of factory (manufacturing) overhead	xxx	
(or)		
Less: Over absorption of factory (manufacturing) overhead	xxx	
Cost of goods sold at actual		xxx

Gross profit on sale		xxx
Less: Fixed selling and administrative expenses	xxx	
Variable selling and administrative expenses	xxx	xxx
NET OPERATING INCOME		xxx

10.7 ADVANTAGES OF ABSORPTION COSTING

Following are the main advantages of absorption costing:

- It suitably recognizes the importance of including fixed manufacturing costs in product cost determination and framing a suitable pricing policy. In fact all costs (fixed and variable) related to production should be charged to units manufactured. Price based on absorption costing ensures that all costs are covered. Prices are well regulated where full cost is the basis.
- It will show correct profit calculation in case where production is done to have sales in future (e.g., seasonal sales) as compared to variable costing.
- It helps to conform with accrual and matching concepts which require matching cost with revenue for a particular period.
- It has been recognized by various bodies as FASB (USA), ASG (UK), ASB (India) for the purpose of preparing external reports and for valuation of inventory.
- It avoids the separation of costs into fixed and variable elements which cannot be done easily and accurately.
- It discloses inefficient or efficient utilisation of production resources by indicating under-absorption or over-absorption of factory overheads.
- It helps to make the managers more responsible for the costs and services provided to their centres/departments due to correct allocation and apportionment of fixed factory overheads.
- It helps to calculate gross profit and net profit separately in income statements.

10.8 DISADVANTAGES OF ABSORPTION COSTING

Following are the main limitations of absorption costing:

- **Difficulty in Comparison and Control of Cost:**

Absorption costing is dependent on level of output; so different unit costs are obtained for different levels of output. An increase in the volume of output normally results in reduced unit cost and a reduction in output results in an increased cost per unit due to the existence of fixed expenses. This makes comparison and control of cost difficult.

- **Not Helpful in Managerial Decisions:**

Absorption costing is not very helpful in taking managerial decisions such as selection of suitable product mix, whether to buy or manufacture, whether to accept the export order or not, choice of alternatives, the minimum price to be fixed during the depression, number of units to be sold to earn a desired profit etc.

- **Cost Vitiated because of Fixed Cost included in Inventory Valuation:**

In absorption costing, a portion of fixed cost is carried forward to the next period because closing stock is valued at cost of production which is inclusive of fixed cost.

- **Fixed Cost Inclusion in Cost not Justified:**

Many accountants argue that fixed manufacturing, administration and selling and distribution overheads are period costs and do not produce future benefits and, therefore, should not be included in the cost of product.

- **Apportionment of Fixed Overheads by Arbitrary Methods:**

The validity of product costs under this technique depends on correct apportionment of overhead costs. But in practice many overhead costs are apportioned by using arbitrary methods which ultimately make the product costs inaccurate and unreliable.

- **Not Helpful for Preparation of Flexible Budget:**

In absorption costing no distinction is made between fixed and variable costs. It is not possible to prepare a flexible budget without making this distinction.

Under Absorption Costing, all costs, both variable and fixed, are charged to the products for cost determination. Thus in case of absorption costing, all costs are identified with the products manufactured. Both fixed costs and variable costs are also treated as product costs. This will be clear with the help of the following example:

Illustration No. 1

A company is manufacturing three products A, B and C. The costs of their manufacture are as follows:

	A	B	C
Direct Material per unit	Rs. 3	Rs. 4	Rs. 5
Direct Labour	2	3	4
Selling Price	10	15	20
Output	1,000 units	1,000 units	1,000 units

The total overheads are Rs. 9,000. Out of which Rs. 6,000 are fixed and rest are variable. It is decided to apportion these costs over different products in the ratio of output.

You are required to prepare separate statements, showing cost of each product and profit according to Absorption Costing and Marginal Costing.

Solution:

STATEMENT SHOWING COST AND PROFIT
(According to Absorption Costing Technique)

Rs.

	A		B		C	
	Per Unit	Total	Per Unit	Total	Per Unit	Total
Direct Material	3	3,000	4	4,000	5	5,000
Direct Labour	2	2,000	3	3,000	4	4,000
Overheads:						
Fixed	2	2,000	2	2,000	2	2,000
Variable	1	1,000	1	1,000	1	1,000
Total Cost	8	8,000	10	10,000	12	12,000
Profit	2	2,000	5	5,000	8	8,000
Selling Price	10	10,000	15	15,000	20	20,000
Total Profit	Rs. 2,000 + 5,000 + 8,000 = 15,000					

STATEMENT SHOWING COST AND PROFIT
(According to Marginal Costing Technique)

Rs.

	A		B		C		Total
	Per Unit	Total	Per Unit	Total	Per Unit	Total	(A+B+C)
Direct Material	3	3,000	4	4,000	5	5,000	12,000
Direct Labour	2	2,000	3	3,000	4	4,000	9,000
Overheads:							
Variable	1	1,000	1	1,000	1	1,000	3,000
Marginal Cost	6	6,000	8	8,000	10	10,000	24,000
Selling Price	10	10,000	15	15,000	20	20,000	45,000
Contribution	4	4,000	7	7,000	10	10,000	21,000
Fixed costs							6,000
Profits							15,000

10.9 VALUATION OF CLOSING STOCK UNDER ABSORPTION COSTING

Fixed costs are taken into account in Absorption costing for valuation of cost of production and closing stock. However, fixed costs are ignored in Marginal costing for valuation of cost of production and closing stock. Profit calculated between Absorption costing would be different from the profit calculated under Marginal costing.

10.10 IMPACT OF FIXED COSTS ON COST OF PRODUCTION PER UNIT UNDER ABSORPTION COSTING

The fixed costs are apportioned to the products on some basis. The basis could be a percentage of direct material or percentage of direct labour or rate per article etc. Whatever be the basis of apportionment of fixed cost to different products, it cannot be said that the apportionment is exact and definite. Charging of fixed costs creates certain problems. Cost of production would be higher in Absorption Costing, compared to Marginal Costing, due to inclusion of fixed cost components in the former.

Cost sheet of a firm is as under:

Direct materials per unit = Rs. 6 Direct Labour per unit = Rs. 4 Prime cost per unit = Rs. 10 Fixed overheads = Rs. 1, 00,000
Production capacity of the firm is 10,000 units.

If the firm works to its full capacity, the total cost of production would be as under: Direct

materials=Rs. 60,000
Direct Labour=Rs. 40,000
Fixed costs=Rs 1, 00,000
Total cost=Rs. 2, 00,000
Total cost per unit=2, 00,000 / 10,000 =Rs 20

If the firm produces only 1,000 units, then the cost of production would be as under: Direct

materials=Rs. 6,000
Direct Labour=Rs. 4,000
Fixed costs=Rs. 1, 00,000
Total cost=Rs. 1, 10,000
Total cost per unit=1, 10,000 / 1,000 =Rs. 110

The total cost per unit, under full capacity, has been only Rs. 20 and it has gone up to Rs. 110, when the capacity of the firm is partly utilized. There is no increase in the

price of raw materials or labour. However, the cost of production per unit has gone up by Rs. 90, amounting to 495% increase, due to lower volume of production. It appears illogical. Some people, therefore, argue that the fixed costs should not be considered, while computing the cost of the product. In Marginal costing, fixed costs are charged against a fund, arising out of excess of selling price over variable cost. This is the logic of marginal costing.

10.11 EFFECT OF OPENING AND CLOSING STOCK ON PROFIT

Impact of opening stock and closing stock would be as under in Absorption Costing and Marginal Costing:

- When sales and production coincide (no opening stock and closing stock situation), profit would be the same under both Absorption costing and Marginal costing.

- If closing stock were more than the opening stock, profit under Absorption Costing would be more than profit under Marginal Costing. This is, because, under Absorption Costing, a portion of fixed overhead is charged to the closing stock and carried over to the next year, instead of being charged to the current period.

- If the closing stock is less than the opening stock, the profit shown under Absorption Costing will be lower than the profit under Marginal Costing. This is because a portion of fixed cost relating to the previous year is charged to the current period.

Illustration No. 2

The data below relates to Kishore Co., which makes and sells sweet packets.

	January	February
Sales	5,000 units	10,000 units
Production	10,000	5,000
Selling Price/ unit	Rs. 100	Rs. 100
Variable production cost/ unit	50	50
Fixed production overhead incurred	1,00,000	1,00,000
Fixed production overhead cost per unit, being the predetermined overhead absorption rate	10	10
Selling, Distribution and administration cost (all fixed)	50,000	50,000

You are required to present comparative profit statement for each month using

(i) absorption costing;

(ii) marginal costing

Comment on the reasons for difference in profit, if any.

Solution:

(i) Profit statement using absorption costing

		January		February	
1.	Sales (5,000 units x Rs. 100) (10,000 units x Rs. 100)		5,00,000		10,00,000
2.	Cost of Goods Sold: Opening Stock	----		3,00,000	
	Variable cost of production				
	(10,000 x Rs. 50)	5,00,000			
	(5,000 x Rs. 50)			2,50,000	
	Fixed Production overhead (10,000 x Rs. 10) (5,000 x Rs.10)	1,00,000		50,000	
	Under absorbed overhead	----		50,000*	
	Total Stock	6,00,000		6,50,000	
	Less Closing stock (5,000 x Rs. 60)	3,00,000		---	
	Cost of goods sold		3,00,000		6,50,000
	Gross Profit		2,00,000		3,50,000
	Less : Selling and Administration cost		50,000		50,000
	Net Profit		1,50,000		3,00,000

(ii) Profit statement under Marginal Costing

		January		February	
1.	Sales (5,000 units x Rs. 100) (10,000 units x Rs. 100)		5,00,000		10,00,000
2.	Cost of Goods Sold :				
	Opening Stock	-----		2,50,000	
	Production (10,000 x Rs. 50) (5,000 x Rs. 50)	5,00,000		2,50,000	
	Total Stock	5,00,000		5,00,000	
	Less Closing stock (5,000 x Rs. 50)	2,50,000		----	
	Cost of goods sold		2,50,000		5,00,000
	Contribution		2,50,000		5,00,000
	Less Fixed Cost :				
	Production Overhead		1,00,000		1,00,000
	Selling and Admn. Overhead		50,000		50,000
	Net Profit		1,00,000		3,50,000

Illustration No. 3

Radhika Company is manufacturing three products X,Y and Z. The costs of their manufacture are as follows:

	X	Y	Z
Direct Material per unit	Rs. 3	Rs. 4	Rs. 5
Direct Labour	2	3	4
Selling Price	10	15	20
Output	1,000 units	1,000 units	1,000 units

The total overheads are Rs. 6,000, out of which Rs. 3,000 is fixed and rest is variable. It is decided to apportion these costs over different products in the ratio of output.

Compute the amount of profit under Marginal and Absorption Costing systems, in case the units sold of the products X, Y and Z are 900 in each case.

Comment on the reasons for the difference in profit between Absorption Costing and Marginal Costing.

What would be the impact of closing stock and opening stock on the profits shown between Absorption Costing and Marginal Costing?

Note: Net profit is different due to difference in valuation of closing stock/opening stock, both under Absorption Costing and marginal Costing for different months. However, total amount of profit is same Rs. 4,50,000 under both the methods.

Solution:

STATEMENT OF PROFIT
(Under Absorption Costing System)

(Rs.)

	X	Y	Z
Sales (A)	9,000	13,500	18,000
Direct Material	3,000	4,000	5,000
Direct Labour	2,000	3,000	4,000
Overheads: Variable	1,000	1,000	1,000
Total Marginal Cost	6,000	8,000	10,000
Add: Fixed Overheads	1,000	1,000	1,000
Production Cost	7,000	9,000	11,000
Add: Opening stock	----	700	900
Less: Closing stock	700	900	1,100
Cost of Goods Sold (B)	6,300	8,800	10,800
Net Profit (Sales Cost of Goods Sold) (A B)	2,700	4,700	7,200

Thus, total net profit under Absorption Costing is:

Product X	Rs. 2,700
Product Y	4,700
Product Z	7,200
Total	14,600

STATEMENT OF PROFIT
(Under Marginal Costing)

	X	Y	Z
Sales (A)	9,000	13,500	18,000
Direct Material	3,000	4,000	5,000
Direct Labour	2,000	3,000	4,000
Overheads: Variable	1,000	1,000	1,000
Production Cost	6,000	8,000	10,000
Add: Opening stock	----	600	800
Less: Closing Stock*	600	800	1,000
Cost of Goods Sold (B)	5,400	7,800	9,800
Contribution (Sales Cost of Goods Sold)	3,600	5,700	8,200

Thus, total profit under Marginal Costing will be:

Contribution from Product X	Rs. 3,600
Contribution from Product Y	5,700
Contribution from Product Z	8,200
Total Contribution	17,500
Less: Fixed Cost	3,000
Total Net Profit	14,500

The total Net Profit Under Absorption Costing System is Rs. 14,600, while it is Rs. 14,500 in case of Marginal Costing System, a difference of Rs. 100. This is on account of the difference in valuation of closing Stock on account of fixed costs. The closing stock under Absorption Costing System is Rs. 1,100, while it is Rs. 1,000 under marginal Costing. The difference in profit Rs. 100 is due to difference in valuation of closing stock. As there is no opening stock, the difference in profit is due to valuation of closing stock, alone.

Thus the profit under absorption costing system would be more as compared to Marginal Costing, if closing stock only exists, without any opening stock. In case, there are no stocks (Opening and closing stock) what so ever, the profits under both absorption costing and marginal costing will be the same.

Illustration No. 4

Ansiha & Co. is engaged in manufacturing toys. Details of cost of production shows variable costs are Rs. 1,20,000 and fixed costs Rs. 35,000, totaling Rs. 1,55,000. They are uniform for three months. But sales, opening and closing stocks are different in three months, details of which are given below:

	(Rs. In thousands)		
	Months		
	1	2	3
Sales	200	165	235
Stocks under marginal Costing: Opening	84	84	105
Closing	84	105	84
Stock under absorption Costing: Opening	108	108	136
Closing	108	136	108

Prepare two tabulations, side by side, to summarise these results for each of three months and the quarter of the year, showing differences in profits on marginal costing and absorption costing theories. Draw conclusions.

Solution:

(Rs. In thousands)

	Marginal Costing				Absorption Costing			
	Months			Total	Months			Total
	1	2	3		1	2	3	
Opening Stock	84	84	105	84	108	108	136	108
Cost	120	120	120	360	155	155	155	465
	204	204	225	444	263	263	291	573
Closing Stock	84	105	84	84	108	136	108	108
Cost of Sales	120	99	141	360	155	127	183	465
Sales	200	165	235	600	200	165	235	600
Contribution	80	66	94	240				
Fixed Cost	35	35	35	105				
Profit	45	31	59	135	45	38	52	135

10.12 LET US SUM UP

Absorption Costing is a conventional technique of ascertaining cost. It is the practice of charging all costs, both variable and fixed to operations, processes or products and is also known as 'Full Costing Technique.' In this technique of costing, cost is made up of direct costs plus overhead costs absorbed on some suitable basis. Here, cost per unit remains the same only when the level of output remains the same for some duration. Nonetheless, the level of output cannot remain the same forever and so does the cost per unit because the fixed cost remains the same despite the changes in the level of output. The change in the cost per unit with a change in the level of output in Absorption Costing Technique poses a problem to the management in taking managerial decisions. Absorption Costing is useful if there is only one product; when there is no inventory and overhead recovery rate is based on normal capacity instead

of actual level of activity. Two distinguishing features of Absorption Costing are that fixed factory expenses are included in unit cost as well as inventory value.

10.13 KEYWORDS

Absorption Costing: Absorption costing is the process of linking all production costs to the cost unit to calculate a full cost per unit of inventories.

CIMA: The Chartered Institute of Management Accountants is a UK based professional body offering training and qualification in management accountancy and related subjects.

Marginal Cost: Marginal cost represents the incremental costs incurred when producing additional units of a good or service. It is calculated by taking the total change in the cost of producing more goods and dividing that by the change in the number of goods produced.

Administrative Cost: Administrative expenses are expenses an organization incurs that are not directly tied to a specific function such as manufacturing, production or sales. Administrative expenses include salaries of senior executives and costs associated with general services, for example, accounting and information technology.

Cost of Goods Sold: Cost of goods sold is the carrying value of goods sold during a particular period.

Cost Control: Cost control is the practice of identifying and reducing business expenses to increase profits, and it starts with the budgeting process

Flexible Budget: A flexible budget is a budget that adjusts to the activity or volume levels of a company.

10.14 FURTHER READINGS

Jain & Narang, Management Accounting, Kalyani Publications

Management Accounting-M Wilson- Cost Accounting-Jena B,Bal S and Das A Himalaya Publishing House

Narasimhan M.S. , Management Accounting, Cengage Learning

Cost & Management Accounting, Taxman Publications

Arora, M.N. Cost Accounting – Principles and Practice. Vikas Publishing House, New Delhi.

Maheshwari, S.N. and S.N. Mittal. Cost Accounting: Theory and Problems. Shri Mahavir Book Depot, New Delhi.

10.15 MODEL QUESTIONS

Q1. What is Absorption Costing?

Q2. What are the differences between Marginal Costing and Absorption Costing?

Q3. Orders that may be refused in absorption costing may be accepted in marginal costing. Explain the reasoning.

Q4. How the accounting data are presented in absorption costing?

Q5. How the valuation of closing stock is done?

Q6. Distinguish between Marginal Costing and Absorption Costing.

Q7. Discuss about the objectives and features of Absorption Costing.

Q8. How fixed cost influences the cost of production in absorption costing?

UNIT-11: MARGINAL COSTING

Structure:

11. 0 LEARNING OBJECTIVES

After Successful study of this unit, you will be able to:

- Explain the Meaning and features of Marginal Costing.
- Distinguish between Marginal Costing and Absorption Costing.
- Explain the determination of income under Marginal Costing.
- Described the Advantages and disadvantages of Marginal Costing.
- Explain the meaning and objectives of Cost Volume Profit (CVC) analysis.
- Calculate the contribution, BEP, Marginal Safety, Profit Volume Ratio etc.

11.1 MEANING AND CHARACTERISTICS OF MARGINAL COSTING

MEANING

The institute of Cost and Management Accountants, London, has defined Marginal Costing as "the ascertainment of marginal costs and of the effect on profit of changes in volume or type of output by differentiating between fixed costs and variable costs". "In this technique of costing only variable costs are charged to operations, processes or products, leaving all indirect costs to be written off against profits in the period in which they arise."

Thus, in this context, marginal costing is not a system of costing such as process costing, job costing, operation costing, etc. but a technique which is concerned with the changes in costs and profits resulting from changes in the volume of output. Marginal costing is also known as 'variable costing'.

- **BASIC CHARACTERISTICS OF MARGINAL COSTING**

The main characteristics of marginal costing are as follows :

1. It is a technique of analysis and presentation of costs which help management in taking many managerial decisions and is not an independent system of costing such as process costing or job costing.
2. All elements of cost—production, administration and selling and distribution are classified into variable and fixed components. Even semi-variable costs are analysed into fixed and variable.
3. The variable cost (marginal costs) are regarded as the costs of the products.
4. Fixed costs are treated as period costs and are change to profit and loss account for the period for which they are incurred.
5. The stocks of finished goods and work-in-process are valued at marginal costs only.
6. Prices are determined on the basis of marginal cost by adding 'contribution' which is the excess of sales or selling price over marginal cost of sales.

11.2 ASSUMPTIONS OF MARGINAL COSTING

The technique of marginal costing is based upon the following assumptions :

1. All elements of cost—production, administration and selling and distribution—can be segregated into fixed and variable components.
2. Variable cost remains constant per unit of output irrespective of the level of output and thus fluctuates directly in proportion to changes in the volume of output.
3. The selling price per unit remains unchanged or constant at all levels of activity.
4. Fixed costs remain unchanged or constant for the entire volume of production.
5. The volume of production or output is the only factor which influences the costs.

- MARGINAL COSTING VS. ABSORPTION COSTING OF FULL COSTING

The basic differences between Absorption costing and Marginal costing are as follows:

1. Absorption costing is the total cost technique. According to the Terminology of Cost Accountacy, absorption costing is "the practice of charging all costs, both variable and fixed, to operations, processes, or products." Thus, under absorption costing all costs whether variable or fixed are treated as products costs even though fixed cost are period costs and have to relevance to current operations.

In marginal costing technique only variable costs are treated as product costs, fixed cost is treated as period cost and charged to profit and loss account for the period.

2. Absorption costing differs from marginal costing from the point of view of inventory valuation also. In absorption costing, the stock of finished goods and work-in-process is valued at total cost which includes both variable and fixed cost. In marginal costing, such stocks are valued at marginal cost, *i.e.,* variable cost only. Hence, it results in higher valuation of inventories in absorption costing as compared to marginal costing.
3. In absorption costing arbitray apportionment of fixed costs, over the products, results in under or over-absorption of such costs. While marginal costing excludes fixed costs and the question of under or over absorption of fixed costs does not arise.
4. In absorption costing, managerial decision-making is based upon 'profit' which is the excess of sales value over total cost. While in marginal costing, the managerial decisions are guided by 'contribution' which is the excess of sales value over variable cost.

11.3 DETERMINATION OF INCOME UNDER MARGINAL COSTING

The income under marginal costing is determined as below:

Income statement under Marginal Costing		
Particulars	Rs.	Rs.
A. Sales		xx
B. Variable Cost of Sales :	xx	x
Direct Material Cost	x	
Direct Labour Cost	xx	
Direct Expenses	x	
Variable Production/Manufacturing Overheads	xx	
Variable cost of Goods Product	x	
Add: Opening Stock	xx	
	x	
Less : Closing Stock	xx	
	x	
Add : Variable Selling and Distribution Overheads	xx	xx
Variable cost of Sales	x	x
C. Contribution (A-B)	xx	
D. Fixed Overheads:	x	
Fixed Factory/Production Overheads	xx	
Fixed Administration Overheads	x	
Fixed Selling and Distribution Overheads	xx	
E. Profit or Income Under Marginal Costing	x	

	xx x	
	xx x xx x xx x	xx x xx x
		xx x

11.4 ADVANTAGES AND LIMITATIONS

The following are the important advantages of marginal costing

Advantages Of Marginal Costing	
1.	Simple to operate and easy to understand
2.	Removes complexities of under-absorption of overheads
3.	Helps management in Production Planning
4.	No possibilities of fictitious profit by over-valuing stocks
5.	Facilitates calculation of important factors like B.E.P.
6.	Valuable aid to management for Decision-Making
7.	Facilitates study of relative profitability
8.	Complimentary to Standard Costing and Budgetary control
9.	Helps in Costs Control
10.	Profit Planning
11.	Management Reporting

- LIMITATIONS OR DISADVANTAGES OF MARGINAL COSTING

In spite of so many advantages, the technique of marginal costing suffers from the following limitations:

1. The technique of marginal costing is *based upon a number of assumptions* which may not hold good under all circumstances.

2. *All costs are not divisible into fixed and variable.* There are certain costs which are semi-variable in nature. It is very difficult and arbitrary to classify these costs into fixed and variable elements.

3. *Variable costs do not always remain constant* and do not always very in direct proportion to volume of output because of the law of diminishing and increasing results.

4. *Selling price do not remain constant* for ever and for all levels of output due to competition, discounts for bulk orders, changes in the general price level, etc.

5. *Fixed costs do not remain constant*after a certain level of activity. Further, marginal costing ignores the fact that fixed costs are also controllable.

6. The exclusion of fixed costs from the stocks of finished goods and work-in-progress is illogical since fixed costs are also incurred on the manufacture of products. *Stocks valued on marginal costing are undervalued* and the profit and loss account cannot reveal true profits. Similarly, as the stock are undervalued, the balance sheet does not give a true picture.

7. Although the technique of marginal costing overcomes the problem of under or over-absorption for fixed overheads, the problem still exists in regard to *under or over-absorption of variable overheads.*

8. Marginal costing completely *ignores the 'time factors'.* Thus, fitwo jobs give equal contribution but one takes longer time to complete, the one which takes longer time should be regards as costlier than the other. But this fact is ignored altogether under marginal costing.

9. The technique of marginal costing *cannot be applied* in contact or ship-building industry because in such cases, normally the value of work-in-progress is very high and the exclusion of fixed overheads may result into losses every year and huge profit in the year of completion of the job.

10. *Costs control* can be better be achieved with the help of other *techniques,* viz., standard costing and budgetary control than by marginal costing technique,

11. *Fixation of selling prices* in the long run cannot be done without considering fixed costs. Thus, pricing decisions cannot be based on marginal cost alone.

12. In the present days of automation, the proportion of fixed costs in relation to variable costs is very high and hence *managerial decisions based upon only the marginal cost ignoring equally important element of fixed cost may not be correct.*

11.5 MEANING AND OBJECTIVES OF COST-VOLUME-PROFIT (CVP) ANALYSIS

Cost-Volume-Profit analysis is a technique for studying the relation between cost, volume and profit. Profit of an undertaking depend upon a large number of factors. But the most important of these factors are the cost manufacture, volume of sales and the selling prices of the products.

The Three factors of CVP analysis i.e., costs, volume and profit are interconnected and dependent on one another.

The cost-volume-profit is of immense of utility to management as it assists in profit planning, cost control and decision making.

The main objective of cost-volume-profit analysis are given below:

(i) The CVP analysis may be used in determining the break-even-point.

(ii) Fixation selling prices.

(iii) Selecting the suitable product/sales mix.

(iv) Profit planning and maintaining desired level of profit.

(v) Determining the optimum level of activity.

(vi) Evaluating the performance.

(vii) Taking many other decisions involving alternative choices such as make or buy decision, accept or reject decision etc.

11.6 TECHNIQUES OR ELEMENTS OF COST-VOLUME-PROFIT ANALYSIS

The following techniques, called the elements of CVP analysis, are employed in the study of cost-volume-profit analysis:

1. Contribution Marginal Concept
2. Marginal Cost Equation
3. Profit-Volume (P/V or C/S) Ratio
4. Break-Even Analysis
5. Marginal of Safety
6. Profit-Volume Graph

- CONTRIBUTION MARGIN CONCEPT

Contribution can be represented as:

Contribution= Sales- Variable (Marginal) Cost

or Contribution (per unit)= Selling Price- Variable (or marginal) cost per unit

or Contribution= Fixed Costs + Profit (- Loss)

- ADVANTAGES OF CONTRIBUTION

The concept of contribution is a valuable aid to management in making managerial decisions. A few benefits resulting from the concept of contribution margin are given below:

1. It helps the management in the fixation of selling prices.
2. It assists in determining the break-even point.
3. It helps management in the selection of a suitable product mix for profit maximisation.
4. It helps in choosing from among alternative methods of production; the method which gives highest contribution per limiting factor is adopted.
5. It helps the management in deciding whether to purchase or manufacture a product or a component.
6. It helps in taking a decision as regards to adding a new product in the market.

- MARGINAL COST EQUATION

For the sake of convenience, a marginal cost equation can be derives as follows:

Sales- Variable cost= Contribution

or, Sales= Variable cost + Contribution

or, Sales= Variable cost + Fixed cost $\pm$ Profit/Loss

or, Sales- Variable cost= Fixed cost $\pm$ Profit/Loss

or, S-V=F$\pm$P

where 'S' stands for Sales

'V' stands for Variable cost

'F' stands for Fixed cost

'P' stands for Profit/Loss

The marginal cost equation is very useful in the sence that if any three factors out of the four areknown, the fourth can easily be found out.

11.7 MARGINAL COST EQUATION

TheProfit/volume ratio, which is also called the 'contribution ratio' or 'marginal ratio', expresses the relation of contribution to sales and can be expressed as under:

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

Since Contribution= Sales- Veriable Cost= Fixed Cost + Profit, P/V ratio can also be expressed as:

$$\text{P/V Ratio} = \frac{\text{Sales- Variable cost}}{\text{Sales}} \quad \text{i.e.} \quad \frac{S-V}{S}$$

$$\text{or, P/V Ratio} = \frac{\text{Fixed Cost + Profit}}{\text{Sales}} \quad \text{i.e.} \quad \frac{F+P}{S}$$

$$\text{or, P/V Ratio} = \frac{\text{Change in profit or Contribution}}{\text{Change in Sales}}$$

This ratio can also be shown in the form of percentage by multiplying by 100. Thus, if selling price of a product is Rs. 20 and variable cost is Rs. 15 per unit, then,

$$\text{P/V Ratio} = \frac{20-15}{20} \times 100 = \frac{5}{20} \times 100 = 25\%$$

11.8 BREAK-EVEN ANALYSIS

The term "break-even analysis" is used in two senses- narrow sense and broad sense. In its broad sense, break-even analysis refers to the study of relationship between costs, volume and profit at different levels of sales or production. In its narrow sense, it refers to a technique of determining that level of operations where total revenues equal total expenses. i.e., the point of no profit, no loss.

- COMPUTATION OF THE BREAK-EVEN POINT

The break-even point can be computed by the following methods:

(i) The Algebraic Formula Method

(ii) Graphic Or Chart Method.

- ALGEBRAIC FORMULA METHOD FOR COMPUTING THE BREAK-EVEN POINT

The break-even point can be computed in terms of:

a) Units of sales volume.

b) Budget total or on terms of money value.

c) As a percentage of estimated capacity.

a) Break-Even Point in Units

As the break-even point is the point of no loss, it is that level of output at which the total contribution equals the total fixed costs, It can be calculated with the help of following formula:

$$\text{Break-Even Point} = \frac{\text{Fixed Cost}}{\text{Selling Price per unit-Variable Cost per unit}}$$

$$= \frac{\text{Fixed Cost}}{\text{Contribution per unit}}$$

b) Break-even Point in terms of budget-total or money value

At break-even point:

Total Sales= Total Fixed Cost + Total Variable Cost

or $S = F + V$

(where S= Sales, F= Fixed Cost and V= Variable cost)

or $S - V = F$

or $\frac{S - V}{S - V} = \frac{F}{S - V}$ (Dividing both sides by S –V)

or $1 = \frac{F}{S - V}$

or $S \times 1 = \frac{F \times S}{S - V}$ (Multiplying both sides by S)

$$\text{Hence, break-even sales} = \frac{\text{Fixed Cost}}{\text{Sales- Variable Cost}} \times \text{Sales}$$

$$= \frac{\text{Fixed Cost}}{\text{Contribution}} \times \text{Sales}$$

With the use of P/V Ratio, $\text{B.E.P.} = \frac{\text{Fixed Cost}}{\text{P/V ratio}}$

As, Contribution= P/V ratio
` Sales

c) Break-even Point as a percentage of estimated capacity

Break-even point can also be computed as a percentage of the estimated sales or capacity by *dividing* the break-even sales by capacity sales. For example, if a firm has an estimated capacity of 1,00,000 units of products and its break-even point is reached at 50,000 units, then the break-even point is at 50% of capacity (1,00,000/50,000). If information as to total contribution at full capacity is available, the break-even point as a percentage of estimated capacity can be found as under:

$$\text{B.E.P (as \% age of capacity)} = \frac{\text{Fixed Cost}}{\text{Total Contribution}}$$

Illustration 1:From the following data, you are required to calculate:

(a) P/V ratio

(b) Break-even sales with the help of P/V ratio

(c) Sales required to earn a point of Rs. 4,50,000

Fixed Expenses	= Rs. 90,000
Variable Cost per unit:	
Direct Material	= Rs. 5
Direct Labour	= Rs. 2
Direct Overheads	= 100% of Direct Labour
Selling Price per unit	= Rs. 12.

Solution:

	Rs.
Selling Price per unit	12
Less: Variable Cost per unit:	
Direct Material	5
Direct Labour	2
Direct Overheads	2
	9
Contribution per unit	3

(a) P/V ratio = Contribution X 100
Sales

= 3 X 100 =25%
12

(b) Break-even Sales = Fixed Expenses
P/V ratio

= 90,000 = 90,000 X 100 = Rs. 3,60,000
25 25
100

(c) Sales required to earn a profit of Rs. 4,50,000

= Fixed Expenses + Desired Profit
P/V ratio

= 90,000 + 4,50,000 = 5,40,000
25% 25
100

= 5,40,000 X 100 = Rs. 21,60,000
25

11.9 GRAPHIC METHOD OF BREAK-EVEN ANALYSIS OR BREAK-EVEN CHART

The break-even point can also be computed graphically. A break-even chart is a graphical representation of marginal costing. The break even chart 'Portrays a pictorial view of the relationship between costs, volume and profits.' It shows the break-even point and also indicates the estimated profit or loss at various levels of output. The break-even point as indicated in the chart is the point at which the total cost line and the total sales line intersect.

Illustration 2: Plot the following data on a graph (break-even chart) and determine

(a) break-even

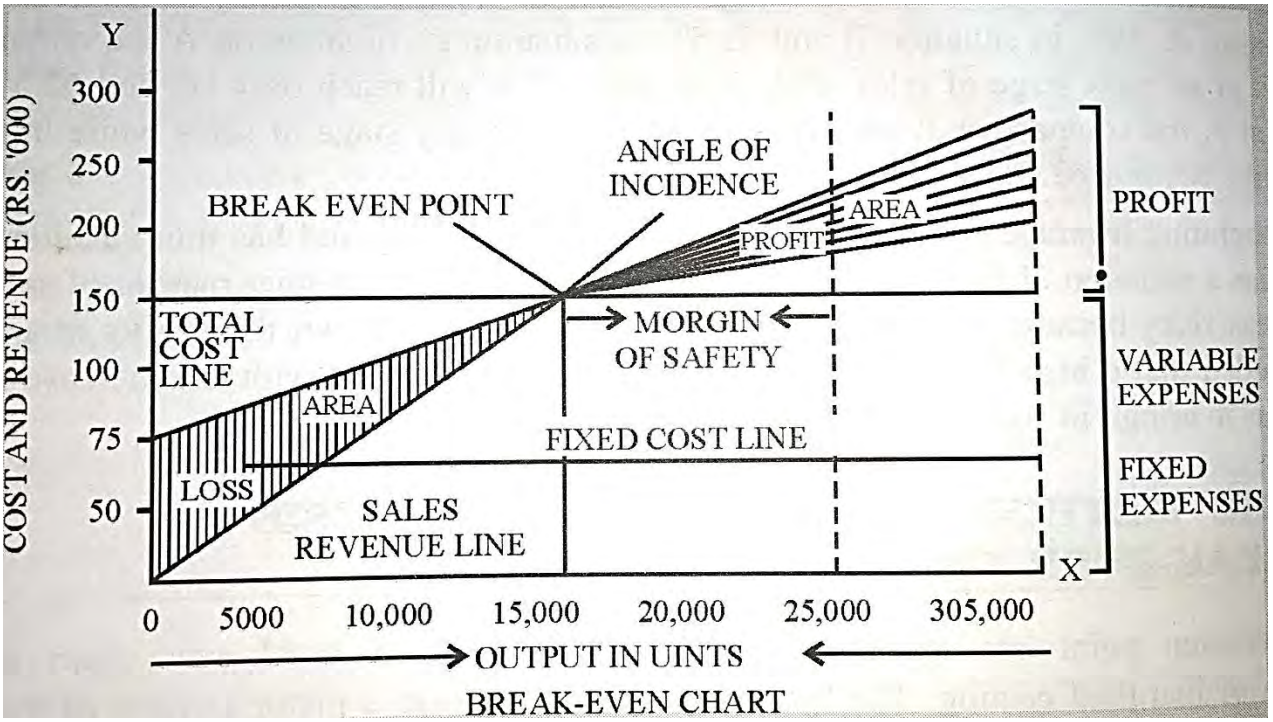
(b) profit if the output is 25,000 units

Output (units)	Variable Cost (per unit) Rs.	Total Variable Cost Rs.	Fixed Expenses Rs.	Total Cost Rs.	Selling Price (per unit) Rs.	Total Sale Rs.
0	5	0	75,000	75,000	10	0
5,000	5	25,000	75,000	1,00,000	10	50,000
10,000	5	50,000	75,000	1,25,000	10	1,00,000
15,000	5	75,000	75,000	1,50,000	10	1,50,000
20,000	5	1,00,000	75,000	1,75,000	10	2,00,000
25,000	5	1,25,000	75,000	2,00,000	10	2,50,000
30,000	5	1,50,000	75,000	2,25,000	10	3,00,000

Solution:

Under this method following steps are taken to draw the break-even chart:

1. volume of production/output or sales is plotted on horizontal axis, i.e., X-axis. The volume of sales or production may be expressed in terms of rupees, units or as a percentage of capacity.
2. Costs and sales revenue are represented on vertical axis, i.e., Y-axis
3. Fixed cost line is drawn parallel to X-axis. The line indicates that fixed expenses remain constant at all levels of activity.



4. The variable costs for different levels of activity are plotted over-the fixed cost line. The variable cost line is joint to fixed cost line at zero level of activity. As the

variable cost line is drawn above the fixed cost line, it represents the total cost at various levels of output/sales.

5. Sales value at various levels of output are plotted and a line is drawn joining these plotted points. This line is called the sales (revenue) line.

6. The number of intersection of total cost line and sales (revenue) line is called the break-even point.

7. The number of units to be produced at break-even point can be determined by drawing perpendicular to the X-axis from the point of intersection of cost and sales line.

8. The sales revenue at break-even point can be determined by drawing a perpendicular to the X-axis from the point of inter-section of cost and sales line.

9. The area below the break-even point represents the loss area as the total sales and less than the total cost and the area above the break-even point indicates the area of profit as the sales revenue exceeds the total cost.

- MARGIN OF SAFETY

Marginal of Safety= Total Sales- Sales at Break-even Point.

Margin of safety can also be calculated with the help of the following formula:

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

This is so because margin of safety is the volume of sales beyond break-even point and all sales above the break-even point give some profit which can be calculated as:

Profit= Margin of Safety X P/V ratio

or

$$\text{M.S.} = \frac{\text{Profit}}{\text{P.V Ratio}}$$

- ANGLE OF INCIDENCE

The angle of incidence os the angle between the sales line and the total cost line formed at the break-even point where the sales line and the total cost line intersect each other. The angle of incidence indicates the profit earning capacity of a business. A large angle of incidence indicates a high rate of profit and, on the other hand, a small angle of incidence indicates a low rate of profit. Usually, the angle of incidence and margin of safety are considered together to indicate the soundness of a business. A large angle of

incidence with a high margin of safety indicates the most favourable position of business.

11.10 REVIEW QUESTIONS

1. Explain the term break-even point. How is it determined and what is its use?
2. From the following data, calculate,

i) P/V Ratio

ii) Profit when sales are Rs.20,000, and

iii) New break-even point if selling price is reduced by 20%

Fixed expenses Rs.4,000

Break-even point Rs.10,000

3. What do you mean by Marginal Costing ? what are its Advantages and limitations.
4. Explain the concept of Marginal Costing. What are the characteristics and assumption of Marginal Costing ?

UNIT 12: USE OF COSTING FOR DECISION MAKING

Structure:

12.0 LEARNING OBJECTIVES

After the successful study of this Unit, you will be able:

- To know the different managerial problems.
- Solve the managerial problems by using different tools and techniques.

12.1 MARGINAL AND DIFFERENTIAL COSTING AS A TOOL OF DECISION MAKING

Marginal and differential costing technique is a valuable aid to management in taking many managerial decisions. it is a useful tool for making policy decisions, profit planning and cost control. The information supplied by the 'total cost method' is usually not sufficient to solve managerial problems. The following are some of the important managerial problems where marginal and differential costing technique can be applied:

12.2 IMPORTANT MANAGERIAL PROBLEMS

1. pricing Decisions
2. Make or by decisions.
3. Shutdown or continue Decisions
4. Exploring new markets
5. profit planning and Maintaining a Desired level of profit
6. problems of key or limiting factor
7. selection of a suitable or profitable sales mix
8. effect of changes in sales price.
9. Alternative methods of production.
10. Determination of optimum level of Activity
11. Evaluation of performance
12. capital investment Decisions
13. Accepting or Rejecting an Expand order
14. Decisions regarding Depth of prosing etc.

12.2 some of the important tools of decision making are discussed as follows

1. Pricing Decisions

Fixing of selling Prius is one of the most important functions of management Although Prius are generally determined by market conditions and other economic factors yet marginal costing technique assists the management in the fixation of selling Prius under various crustiness as:

a) Pricing under normal conditions.
b) During stiff competition

c) D urging trade depression
d) For accepting special bulk orders
e) For accepting additional orders utilizing idle capacity
f) For accepting export orders and exploring new markets

(a) Pricing Under Nirmal Conditions

Under normal crustiness, the Prius are based upon total cost of sales so as to cover both fixed as well as variable cost and in condition to provide for certain designed margin of profit.

But Prius can also fixed and the basses of marginal cost by adding a sufficiently high margin to marginal(variable) cost so as to cover the fixed cost and profits. However, under other circumstances, products may have to be sold at Apria below the total cost. For example, in the days of stiff competition or to meet the situation arising due to trade depression, for accepting special bulk or additional orders for utilizing idle capacity, for exporting and exploring new markets. Etc. The products may have to be sold at a price below the total cost based upon absorption casting, in such circumstances, the prices should he fixed an the basis of marginal cost (and total cost) in such a manner so as to cover the marginal cost and contribute something towards the fixed expenses. Sometimes it may become necessary to reduce the selling prices to the level of marginal cost or even below the marginal cost.

(b) Selling price Below the Marginal Cost

The selling prices of products may be fixed even below the marginal cost in the following crustiness:

(i)To introduce a new product in the market.
(ii)To popularize a particular product.
(iii)To explore foreign markets.
(iv)To eliminate the competitor from the market.
(v)To help the sale of joint products.
(vi)To avoid the entrenchment of workers.
(vii)To dispose off the product of perishable nature.
(Viii)To utilize idle capacity.
(ix) To keep plant and machinery in the running conditions
(X)To retain aid customers and prevent loss of future orders.
(xi)To avoid extra losses by closing down the business
(xii)To dispose off surplus stocks.

(C)Pricing During Stiff Competition and Trade Depression

During stiff competition, produced may have to be sold at a price below the total cost. In such crustiness, the price should be fixed on the basis of marginal cost in such a manner so as to cover the marginal (variable) cost and contribute somethings towards the fixed expenses. Sometimes, to eliminate the weaker competitors from the market, the price may be fixed even below the marginal cost.

During depression also products may be sold at a price below the total cost. There is a fall in the price as a result of depression. The prices can be safely reduced to an extent which

covers the variable cost and contributes something towards the fixed cost. This is so because fixed expenses will be incurred even if the product is discontinued during depression for a short period. In Cass the product can be sold at something above the marginal cost, the total loss on account of fixed expenses shall reduce as sales reduce as sales will recover same of the fixed expenses. If there is a serious but temporary fall in the demand of the product, the minimum price that can be fixed is the marginal cost because selling below the marginal cost would mean more losses than the losses on losing down the business. Hence, if the product can be sold at a price equal to or mare than the marginal cost, the business should be continued under such circumstances,

2, Accepting Special orders, bulk orders, Additional order Export orders and Exploring New Markets

Bulk orders, additional orders and orders from foreign or new markets, may be accepted at a price below the normal market price so as to utilize the idle capacity. Such orders are received usually asking for a price below the market price and hence a decision is to be taken to accept or reject the order. The order may be accepted at any price above the marginal cost because the fixed cost, have to be incurred even otherwise. Any contribution resulting farm the additional sales would mean an additional profit. But cane must be taken to see that accepting an order below the market price does not affect the normal selling price adversely. For example, an order from a local merchant should not be accepted at a price below the normal market price because it will affect the relationships with other customers buying at a normal price. But it it is a foreign order, it may be accepted at a price below the normal price keeping in view the additional costs of expanding, if any and direct and indirect be benefits of exporting such as, good will, subsidies, quotas, etc.

3.Make or Buy Decisions

Sometimes a concern has to decide whether a certain product or a component should be made in the factory it self (having unused production facilities) or bought from outside from a firm which specializes in it. in taking such a ‘make or buy’ decisions, the technique of marginal costing is of immense help. While deciding to ‘make or buy’ a distinction must be made between fixed cost and variable cost, and the variable cost of manufacturing it should be compared with the price at which this component or product can be bought from outside. It is advisable to make than to buy if the variable (marginal) cost of the proud ct or component is lower than the purchase price. But if the purchase price is lower than the marginal cost, it would be better to buy than to make itself. However, this decision is based upon the assumptions that fixed expenses do not increase and production facilities can not be employed more profitably. Further, the irregularity of supply from outside, disclosure of business secretes and non – availability of surplus capacity, etc. may force a concern to make rather than to buy.

4. Selection of a Suitable Product/ Sales Mix

When a concern manufactures more thin one product, a problem after arises as to the product mix or the sales mix which will yield the maximum profits .in determining the optimum or profitable sales mix, the products which give the maximum contribution are to be retired and their production should be increased. The production of products which

give comparative lesser contribution should be reduced or dropped altogether. Finally, the optimum sales mix is that which gives the highest contribution, in case there is a limiting factor, the contribution per unit of limiting factor should be considered while judging the profitability of a product.

5. **Shutdown or Continue Decisions**

Evaluation of performance efficiency of various departments, product lines or markets can also be made with the use of the technique of marginal costing. Sometimes, the management may have to decide to discontinue the production of non – profitable products or departments so as to maximize the profits. in such cases, the contribution of different products, departments or sales division can be corn pared and the one which gives the lowest contribution in comparison to sales,i.e the one with lowest p/v ratio should he discontinued.

6. Profit Planning and Maintaining a Destined Level of profit:

Marginal costing techniques can be applied for profit planning as well. Profit planning involves the planning of future quartinos to achieve maximum profits or to achieve maximum profits or to maintain a desired level of profits, The change in the sales price, variable cost and product mix affect. The profitability of a conure. A absorption costing fails to bring out the effect of such changes an the profits of a conure due to the inclusion of fixed expenses in the total cost. with the help of marginal costing, the required value of sales for maintaining or attaining a desired level of profit may be ascertained as follows:

Desired Sales = Fixed cost + Desired profit

p/v ratio

7. problem of key or Limiting Factor:

A limiting factor is a factor which limits or restricts production or sales and thus prevents a concern from making unlimited profit. Limiting factor is also known as key factor. The limiting factor may be any factor of production such as availability of raw material, labor capital, plant capacity and even sales.in case, a concern has two or more product lines, and there is a key or limiting factor, a problem may arise as to which product should be produced more so as to utilize the limiting factoring the best possible manner and to maximize the or profits, when limiting factors is in operation. contribution per unit of limiting factor should be the criterion to assess the profitability of a product. The product which gives lower contribution per unit of limiting factor, when two more limiting factors are in operation, it is necessary to take all of them in to consideration.

7. **Alternative methods of production:**
   Sometime the management has to choose from among alternative methods of production, e.g. machine work or hand work, the same product may be produced either by employing machine No I or machine no2 and the management may be confronted with the problem of choosing one among them. In such circumstances, techniques of marginal costing can be applied and the method which gives the highest contribution can be adopted keeping in view, of course the limiting factor.

8. Determination of optimum level of activity,

The technique of marginal costing also helps the management in determining the optimum level of activity. To make such a decision, contribution at different levels of activity can be found, and the level of activity which gives the highest contribution will be the optimum level. The level of production can be raised till the marginal cost does hot exceed the selling price-

10. Evaluation of performance. Evaluation of performance efficiency of various departments,

Product lines or market can also be male with the use of the technique of marginal costing. Sometimes the management may have to decide to dis continue the production of non- profitable products or departments so as to maximize the profits. In such cases, the contribution of different products, departments or sales divisions can be compared and the one which gives the lowest contribution in comparison to sales I,e, the one with lowest p/v ratio should be discontinued.

II. Capital investment decisions. The technique of marginal wasting also helps the management in taking capital investment decisions. Such decisions are very crucial for the management.

12.3 REVIEW QUESTION

1. Briefly discuss the marginal costing and differential costing as a tool of decision making. Write short notes one:

2. write short notes one:

a. Exploring new market.
b. Evaluation of performance
c. Capital investment decisions.

Block-4

Budgeting and Standard Costing

Unit 13: Budget and Budgetary Control

Unit 14: Classification of Budget

Unit 15: Standard Costing

Unit 16: Variance Analysis

UNIT 13: BUDGET AND BUDGETARY CONTROL

Structure

13.0 LEARNING OBJECTIVES

After going through this unit, you will able to

- Explain the meaning of the term budget and budgetary control
- Describe the objectives and/or uses of budget and budgetary control
- Describe the concept of fixed, flexible and master budget and the nature or characteristics thereof
- Explain the advantages and limitations of budget and budgetary control.

13.1 INTRODUCTION

Planning is considered to be the most important function of management. In the words of Prof. J. P. Bose, "Planning means assessing the future and making provision for the same". It helps in determining the course of action to be followed for achieving the objectives and fulfilling the targets and goals of the organization. Hence, one of the essential features of modern business management is planning and control. There are number of tools and devices, which assist management in planning, and controlling business operations. Budgeting is considered to be the most common, useful and widely practiced standard device of planning and control.

13.2 MEANING AND USES OF BUDGET

The word 'budget' is derived from a French term "Bougette" which denotes a leather pouch in which funds are appropriated for meeting anticipated expenses. The same meaning applies to business management. Thus, a budget is a numerical statement expressing the plans, policies and goals of the enterprise for a definite period in future. It is a plan laying down the targets to be achieved within a specified period. It is a final and approved shape of a forecast. Forecasts are statements expressed in quantitative or financial terms and indicate possible production, sales, costs, or other expenses etc. When forecasts are approved by the management as a tentative plan for the future, they become budgets.

The following are some important definitions of a budget:

1. "A budget is a written plan covering projected activities of a firm for a defined time period". Dickey.
2. "Budget is an estimate of future needs arranged according to an orderly basis, covering some or all the activities of an enterprise for a defined period of time." George R Terry
3. "A budget is a predetermined statement of management policy during a given period which provides a standard for comparison with the results actually achieved." J.L. Brown & L.R. Howard.
4. "A financial and/or quantitative statement, prepared prior to a defined period of time, of the policy to be pursued during that period for the purpose of a given objective." ICMA, England.

An analysis of the above definitions reveals the following essential features of a budget:

a) A budget may be expressed in terms of money or quantity or both.

b) It should be developed prior to the period during which it is to operate. c) It is set for a definite future period of time.

d) The objectives to be achieved and the policy to be pursued to achieve the predetermined objective are to be clearly laid down in advance.

e) It provides yardsticks and measures for the purpose of comparison.

The following are the objectives/uses of a budget:

- A budget is a blueprint of the desired plan of action. Plans covering the entire organization together with all its functions such as purchase, production, sales, finance, labour and research and development etc are expressed through budgets. The budget serves as a declaration of policies, plans and programmes for executives at all levels of management.
- Budget serves as a good means of coordination of the business as a whole. In the course of budgeting, the various factors such as production capacity, sales potentialities, procurement of materials, labour etc are balanced and coordinated so that all activities of the organization proceed in a harmonious and systematic way for fulfillment of the given objectives.
- Budgets also serve as a good means of communication. Complex plans laid down by the top level management are passed on to those who are responsible for translating them into action. Similarly, reports and feedback on the same are passed on by them to the top level management for controlling the operations.
- Budgets facilitate centralized control with delegated authority and responsibility. Budgets are instruments of managerial control by means of which the

management can measure performances of various departments, divisions etc for taking corrective action in case any deviations are observed between budgeted and actual performances

13.3 MEANING OF BUDGETARY CONTROL

Budgetary control is a means of control in which the actual state of affairs is compared with the budgets so that appropriate action may be taken with regard to any deviations before it is too late. Thus, budgetary control is a continuous process which helps in planning, coordinating and controlling the operations of an undertaking. In the words of Terry, "Budget is a means and budgetary control is the end result." According to Prof. Van Sickle "A budget is an integral part of the budgetary control system. The budget is the financial plan, budgetary control results from the administration of financial plans."

According to Brown and Howard, "Budgetary control is a system of controlling costs which includes the preparation of budgets, coordinating the departments and establishing responsibilities, comparing actual performances with the budgeted and acting upon results to achieve maximum profitability."

J. Batty puts it as "A system which uses budgets as a means of planning and controlling all aspects of production and/or selling commodities and services".

The following points emerge from the definitions given above:

- Budgets are prepared for each department and then the plans and objectives are presented before the management.
- The budgetary control coordinates the plans of various departments and then the master budget is prepared.
- The essential features of budgetary control are to conduct continuous comparison of actual performance with budgeted figures in order to reveal the deviations.
- Budgets are revised, whenever considered necessary according to changed conditions.

OBJECTIVES/USES OF BUDGETARY CONTROL

The main objectives of budgetary control are as follows:

- To ensure planning for the future by formulating various functional budgets.
- To coordinate the activities of the various departments.
- To operate various divisions, units, departments and cost centers efficiently and economically.
- To pre-determine the capital expenditures of the business for future.
- To prevent waste, reduce expenses and to obtain the desired income.

- To centralize the control system.
- To establish divisional as well as individual responsibilities.
- To correct the deviations from the established standards.

13.4 ESSENTIALS OF AN EFFECTIVE BUDGETING

A good budgeting system requires a good organisational system with lines of authority and responsibility clearly mentioned. There must be perfect coordination among different functions as well as participation of responsible managers / supervisors in the decision making process. Thus, the main essentials of effective budgeting may be as follows:

- There should be a well-planned organisational set-up, authority and responsibility clearly defined, a budget committee should be formed consisting of all top executives.
- There should be a good accounting system which provides accurate and timely information.
- Variations should be reported promptly and clearly to the appropriate levels of management.
- Budgets have no meaning unless they lead to control action as a consequence of feedback provided.
- The whole system should enjoy the support and cooperation of top management.
- Staff should be strongly and properly motivated towards the systems.
- Budgets should be prepared on the basis of clearly defined business policies after discussion held with the head of individual department so that they may provide their suggestions in this regard.

13.5 LET US SUM UP

A budget is in the nature of an estimate and is a quantified plan for future activities to coordinate and control the use of resources for a specified period. Budget is used as a standard with which actual performance is measured. Budgeting is a process which includes both budget and budgetary control. Budget is a planning function and budgetary control is a system and technique which uses budgets as a means of controlling all aspects of the business and is designed to assist management in the measurement of actual performance, in the analysis of deviations from the budgeted targets and to evaluate performance and efficiency of the operations. A good budgeting system requires a good organisational system with the lines of authority and responsibility clearly mentioned. The important essentials required for the establishment of a sound system of budgeting includes budget centers, budget

committee, budget officer, budget manual, budget period, budget key factor, forecasting, determining level of activity and preparation of budget.

13.6 KEY WORDS

- Budget: A comprehensive and coordinated plan, expressed in financial terms, for the operations and resources of an enterprise for some specific period in the future.
- Budgeting: The process of preparing plans for future activities of a business enterprise for attaining the objectives of an organisation.
- Budgetary Control: The establishment of budgets relating to the responsibilities of executives to the requirement of a policy and the continuous comparison of actual with budgeted results either to secure by individual action the objectives of that policy or to provide a basis for its revision

13.7 FURTHER READINGS

- Management Accounting: Sharma & Gupta, Kalyani Publishers, Delhi.
- Management Accounting: Pillai & Bhagawathi, S Chand & Co Ltd. Delhi.
- Management Accounting: Khan & Jain, Tata Mc-graw Hills Ltd. Delhi.
- Edward B. Deakin and Michael W. Maher, Cost Accounting, Richard D. Erwin, inc., Homewood, Illinois.
- Lal Nigam B.M. and Sharma G.L., Advanced Cost Accounting, Himalaya Publishing House, Bombay-4.
- Indira Gandhi National Open University, Study Material MS-4 and MS-43.
- Maheswari, S.N. 1987, Management Accounting and Financial Control, Sultan Chand: New Delhi.

13.8 TERMINAL QUESTIONS

Q 1: What do you mean by budget and budgetary control? Discuss the objectives/uses of budgetary control.

Q2.What is the necessity of budget?

UNIT 14: CLASSIFICATION AND TYPES OF BUDGETS

14.1 INTRODUCTION

Budgets can be classified based on various criteria, including the purpose they serve, the time frame they cover, and the level of detail they provide. Here are the main classifications of budgets:

14.2 CLASSIFICATION

The following are the types and classification of budgets: (A) Classification According to Time:

1. Long –term budgets

2. Short-term budget

3. Current budget

(B) Classification on the Basis of Functions

1. Operating budget

2. Financial budget

3. Master budget

(C) Classification on the Basis of Flexibility

1. Fixed budget

2. Flexible budget

(A) Classification according to time:

Long Term Budget: These budgets are usually prepared for the purpose of long term business planning by the top level management and not allowed to be known to lower level management and the budget covers certain activities like capital expenditure projects, long term financing and research and development projects etc. The period covered by the long term budget normally ranges from five to ten years. Long term budgeting is mostly used by those industries where the gestation period is longer than others.

Short Term Budget: The period covered by this type budget ranges from one to two years only and these budgets are expressed in monetary terms. The industries producing consumer goods use this type of budgets.

Current Budget: The period covered by this type of budget may comprise of a few months or a few weeks only. These budgets are usually concerned with the current activities of the organization.

(B) Classification on the basis of functions:

Operating Budget: These budgets are prepared to cover different activities or operations of the organization and its number depends upon the nature of the business and the volume of transactions. The most common operating budgets are Sales Budget, Production Budget, Production Cost Budget, Purchases Budget, Raw Material Consumption Budget, Labour Budget, Plant Utilisation Budget, Administrative Overhead Budget and Sales Overhead Budget etc. These budgets may be expressed either in terms of programmes or in terms of responsibility centers.

Financial Budget: The financial budgets are concerned with receipts and payments of cash, determination of working capital requirements, evaluation of capital expenditure proposals, projection of financial position and profit and loss etc. The most common financial budgets are Cash Budget, Working Capital Budget, Capital Expenditure Budget, Projected Income Statement and Balance Sheet etc.

Master Budget: Master Budget is the outcome of integration of various functional budgets. According to ICWA, London, "The Master Budget is the summary budget incorporating its functional budgets." It is prepared by the Budget Officer and is kept in the custody of the top level management as it contains matters of a confidential nature. This budget is mainly used to coordinate and control the activities of the various departments.

(C) Classification on the basis of flexibility:

Fixed Budget: This budget has been designed in such a way that it remains unchanged even when there is a change in the level of activity. This budget is prepared for a given

level of activity and is not adjusted for any change in the level of activity actually attained. This budget has very limited use and it is not an effective tool for cost control. This budget can be put into use under some static conditions only, but in practical life conditions never remain static.

Flexible Budget: This is a dynamic budget which is designed to change in accordance with change in the level of activity. The budget is prepared in such a way that it presents the budgeted cost for different levels of activity. It is considered to be a more realistic and practical budget because any change expected in the level of activity is given due weightage. This budget is more useful for those concerns where the level of activity changes from time to time and where the concern has to operate under conditions of uncertainties. The flexible budget facilitates ascertainment of cost of production at various levels of activity, fixation of selling price, preparation of tenders and quotations and profits etc. at various changed levels of activity.

14.3 PREPARATION OF BUDGETS

The sales budget is usually the keystone in planning and control of operation of a business. Sales forecast serves as a base for the sales budget. The sales budget is prepared in quantitative terms of units expected to be sold and the value expected to be realised. The Sales Manager should be made directly responsible for the preparation and execution of the sales budget. This is prepared according to the requirements of the business while preparing the sales budget. The useful classification may be- products, territories, customers, salesmen, etc. More than one classification may be employed. However, at the time of preparing sales budget the following factors should be kept in mind: (a) Salesmen's estimates (b) orders in hand (c) Past behaviour (d) Management policies for future (e) seasonal fluctuations (f) availability of materials (g) plant capacity (h) availability of finance (i) potential market (j) level of competition (k) position of competitors, etc.

Illustration 01:

Shri Ramu manufactures two types of toys, Raja and Rani and sell them in Agra and Mumbai markets. The following information is made available for the current year 2003-2004:

Places/Markets	Type of Toys	Budgeted Sales 2002-2003	Actual Sales 2002-2003
Agra	Raja	400 at Rs. 9 each	500 at Rs. 9 each
	Rani	300 at Rs. 21 each	200 at Rs. 21 each
Mumbai	Raja	600 at Rs. 9 each	700 at Rs. 9 each
	Rani	500 at Rs. 21 each	400 at Rs. 21 each

Market studies reveal that toy Raja is popular as it is underpriced. It is observed that if its price is increased by Rs.1 it will find a ready market. On the other hand, Rani is overpriced and market could absorb more sales if its selling price is reduced to Rs. 20.

The management has agreed to give effect to the above price changes. On the above basis, the following estimates have been prepared by Sales Manager:

Product	% increase in Sales Over Current Budget	
	Agra	Mumbai
Raja	+10%	+5%
Rani	+20%	+10%

With the help of an intensive advertisement campaign, the following additional sales above the estimated sale are possible:

Product	Agra	Mumbai
Raja	60 units	60 units
Rani	40 units	50 units

You are required to prepare a budget for sales incorporating the above estimates.

Sales Budget **Period 2003-2004**

Budget for the year		2002-2003			Actual Sales 2002-2003			Budget for the future		
Place	Product	Units	Price Rs.	Value Rs.	Units	Price Rs.	Value Rs.	Units	Price Rs.	Value Rs.
Agra	Raja	400	9	3600	500	9	4500	500	10	5000
	Rani	300	21	6300	200	21	4200	400	20	8000
	Total	**700**	-	**9900**	**700**	-	**8700**	**900**	-	**13000**
Mumbai	Raja	600	9	5400	700	9	6300	700	10	7000
	Rani	500	21	10500	400	21	8400	600	20	12000
	Total	**1100**		**15900**	**1100**	-	**14700**	**1300**	-	**19000**
Total	Raja	1000	9	9000	1200	9	10800	1200	10	12000
	Rani	800	21	16800	600	21	12600	1000	20	20000
	Total	**1800**	-	**25800**	**1800**	-	**73400**	**2200**	-	**32000**

Working Note:

1) Calculation of Budget Estimates

	Agra	Mumbai
Raja-Budgeted	400	600
Increase	40 (+10%)	30 (+5%)
	440	630
Advertisement effect	60	70
	500	700
Rani-Budgeted	300	500
Increase	60 (+20%)	50 (+10%)
	360	550
Advertisement effect	40	50
	400	600

Thus a preliminary sales budget is prepared product wise, territory-wise and also customer-wise and then a detailed budget is also prepared on the basis of salesman's estimates. Both the budgets are to be compared and necessary adjustments are made to the final sales budget after taking into account the policy of the management. Then the sales budget will be submitted to the budget committee for approval and incorporation in the master budget.

14.4 PRODUCTION BUDGET

The Production Budget is a forecast of the production for the budget period. It provides an estimate of the total volume of production product-wise with the scheduling of operations by days, weeks and month and also a forecast of the closing finished product inventory. It is based on the sales budget. The Factory Manager is the person generally made responsible for its preparation, administration and execution. This budget can also be prepared department-wise. This budget is prepared in quantity terms only. The main factors, which are useful in preparing production budgets are:

(a) Inventory Policies (b) Sales Requirements (c) Uniformity of Production (d) Plant

Capacity (e) Availability of inputs (f) Duration of Production.

Production may be computed as follows:

Units to be produced = Budgeted Sales + Desired Closing Stock of finished goods –

Opening Stock of finished goods.

Illustration 02

A manufacturing company submits the following figures for the first quarter of 2002:

Particulars	Product X	Product Y	Product Z
Sales (units) January	50,000	60,000	20,000
February	40,000	50,000	20,000
March	60,000	70,000	20,000
Selling price per unit (Rs.)	10	20	40
Targets for Ist quarter 2003: Increase in sales quantity	20%	10%	10%
Increase in sales price	Nil	10%	25%
Opening stock on Jan. 1, 2003 (Percentage of sales)	50%	50%	50%
Stock position on 31st March, 2003	40,000	50,000	10,000
Closing stock for January and February (Percentage of subsequent months sales)	50%	50%	50%

You are required to prepare the Sales and Production Budgets for the 1st quarter of 2003.

Solution:

Sales Budget

	January, 03			February, 03			March, 03			Total	
	Units	Rate (Rs.)	Value (Rs.)	Units	Rate (Rs.)	Value (Rs.)	Units	Rate (Rs.)	Value (Rs.)	Units	Value (Rs.)
Product X	60,000	10	6,00,000	48,000	10	4,80,000	72,000	10	7,20,000	1,80,000	18,00,000
Product Y	66,000	22	14,52,000	55,000	22	12,10,000	77,000	22	16,94,000	1,98,000	43,56,000
Product Z	22,000	50	11,00,000	22,000	50	11,00,000	22,000	50	11,00,000	66,000	33,00,000
Total	1,48,000	—	31,52,000	1,25,000	—	27,90,000	1,71,000	—	35,14,000	4,44,000	94,56,000

Working Note :

1) Calculation of Budget estimates

		January	February	March
Product X :	Budgeted	50,000	40,000	60,000
	Increase (20%)	10,000	8,000	12,000
		60,000	48,000	72,000
Product Y :	Budgeted	60,000	50,000	70,000
	Increase (10%)	6,000	5,000	7,000
		66,000	55,000	77,000
Product Z :	Budgeted	20,000	20,000	20,000
	Increase (10%)	2,000	2,000	2,000
		22,000	22,000	22,000

Production Budget for the 1st Quarter 2003 **(Units)**

Particulars	January	February	March	Total
Product X : Sales Budget	60,000	48,000	72,000	1,80,000
Add : Closing Stock (50% of subsequent month sales)	24,000	36,000	40,000	40,000
	84,000	84,000	1,12,000	2,20,000
Less : Opening Stock (50% of sales)	30,000	24,000	36,000	30,000
PRODUCTION BUDGET	54,000	60,000	76,000	1,90,000
Product Y : Sales Budget	66,000	55,000	77,000	1,98,000
Add : Closing Stock (50% of subsequent month sales)	27,500	38,500	50,000	50,000
	93,500	93,500	1,27,000	2,48,000
Less : Opening Stock (50% of sales)	33,000	27,500	38,500	33,000
PRODUCTION BUDGET	60,500	66,000	88,500	2,15,000
Product Z : Sales Budget	22,000	22,000	22,000	66,000
Add : Closing Stock (50% of subsequent month sales)	11,000	11,000	10,000	10,000
	33,000	33,000	33,000	76,000
Less : Opening Stock (50% of sales)	11,000	11,000	10,000	11,000
PRODUCTION BUDGET	22,000	22,000	23,000	65,000

Closing stock as on 31st March, 2003 is given in the problem. Opening and closing stock for January and February months have been calculated as per the percentages given in

the problem. Students should be noted that the previous months closing stock will become the opening stock of the subsequent month.

14.5 PRODUCTION COST BUDGET

This budget is a forecast of the cost of production which has been planned in the production budget. The production budget is prepared in terms of quantity to be produced. The amount is shown in this budget. The total cost of production is arrived at by adding the cost of materials, labour and manufacturing overheads. The quantity of material, the time taken by labour and the estimated costs of material, labour and expenses- all can be shown as part of the production cost budget also.

Illustration 03

The following information is abstracted from the books of ABC Co. Ltd., for the six months of 2005 in respect of product X: The following units are to be sold in different months of the year 2005:

January	2,200
February	2,200
March	3,400
April	3,800
May	5,000
June	4,600
July	4,000

There will be work in progress at the end of the month. Finished units are equal to half the sales of the next month's stock at the end of every month (including December, 2004). Budgeted production and production cost for the half-year ending 30th June, 2005 are as follows:

Production (units)	40,000
Direct material per unit	Rs. 5
Direct wages per unit	Rs. 2

Factory Overheads apportioned to production Rs.1, 60,000 you are required to prepare Product Budget and Production Cost Budget for the six months of year 2005.

Solution

Production Budget (in Units)							
	January	February	March	April	May	June	Total
Estimated Sales	2200	2200	3400	3800	5000	4600	
Add : Closing Stock	1100	1700	1900	2500	2300	2000	
	3300	3900	5300	6300	7300	6600	
Less : Opening Stock	1100	1100	1700	1900	2500	2300	
Production	2200	2800	3600	4400	4800	4300	22,100

Production Cost Budget

(Production : 22, 100 units)

	Rs.
Direct materials @ Rs. 5 for 22,100 units	1,10,500
Direct wages @ Rs. 2 for 22100 units	44,200
Factory Overheads @ Rs. 4 for 22100 units (Rs. 1,60,000/40,000 units)	88,400
Total Production Cost	2,43,100

14.6 MATERIALS BUDGET

Materials are either direct or indirect. The Material budget generally deals only with the direct materials. Indirect materials are generally included in the overhead budget. The material requirements are estimated on the basis of the quantity of each class of products to be produced by multiplying the exact material requirement for each class of product by the number of units of that class. Material budget can be prepared on the basis of standards or, historical data regarding percentage of raw materials to total cost, adjusted for current price and normal wastage of material.

The factors to be considered while preparing the Material Budget are: the quantity of material required for the production budget, tentative dates by which required material must be available, the availability of storage facilities as well as credit facilities, price trends in the market, nature of the materials required etc. Only direct materials are to be taken into account and indirect materials are not taken into account as they are considered under overheads budget. The material budget helps the management for proper planning of purchases. The object of the budget is to ensure the availability of adequate quantities of materials as and when required. It will be included in the Master Budget after the approval of the Budget Committee.

Illustration 04

The following information relates to a manufacturing company:

Targeted sales of product X 1, 00,000 units. Each unit of product X requires 3 units of material A and 4 units of material B. Estimated opening balances at the commencement of the next year:

Finished product : 20,000 units

Material A : 24,000 units

Material B : 30,000 units

The desirable closing balances at the end of the next year are :

Finished Products : 28,000 units

Material A : 26,000 units

Material B : 32,000 units

From the above information prepare a Material Budget.

Solution

Firstly, we have to find out the number of units to be produced. We know that,

Opening Stock + Production = Sales + Closing Stock

Units to be produced = Sales + Closing Stock – Opening Stock

= 1,00,000 + 28,000 – 20,000

= 1,08,000 units

Material required :

Material A = 1,08,000 × 3 = 3,24,000 units

Material B = 1,08,000 × 4 = 4,32,000 units

Material Purchase Budget (Units)

Particulars	Finished Product	Material required A	Material required B
Budgeted Production	1,08,000	3,24,000	4,32,000
Add : Opening Stock	(+) 20,000	(–) 24,000	(–) 30,000
	1,28,000	3,00,000	4,02,000
Less : Closing Stock	(–) 28,000	(+) 26,000	(+) 32,000
Estimated product for sales	1,00,000		
Estimated Material required :		3,26,000	4,34,000

14.7 PURCHASE BUDGET

Purchase Budget gives the details of material purchases to be made in the budget period. It correlates with sales forecast and production planning. It deals with purchases that are required for planned production. Purchases would include both direct and indirect materials and goods. While placing the purchase orders material manager has to see the orders on hand and unfulfilled orders at the beginning of the budget period and adjust the purchases accordingly. Purchase budget enables the budget officer to provide funds in the cash budget according to delivery schedules, terms

of payment and credit period. While preparing the purchase budget the factors like the opening and closing stock to be maintained, maximum and minimum stock quantities to be maintained, economic order quantity level, the resources available, the policy of management etc., should also be taken into account. Budgeted Purchase Quantity = Budgeted Consumption Quantity + Required Closing Stock – Opening Stock.

14.8 DIRECT LABOUR BUDGET

The direct labour budget tells about the estimates of direct labour requirements essential for carrying out the budgeted output. The quantity of labour, e.g. skilled, unskilled, semi-skilled etc are estimated first. The time taken by them can be measured in terms of man hours. Thereafter, the total cost of labour is estimated by multiplying the rates of pay with the labour hours. The purpose of this budget is to ensure optimum utilization of the labour force.

14.9 OVERHEADS BUDGET

The overheads budget should be prepared in three parts as follows:

1) Manufacturing Overhead Budget

2) Administration Overhead Budget, and

3) Selling and Distribution Overhead Budget.

Manufacturing Overhead Budget

The budget is an estimate of the manufacturing overhead costs to be incurred in the budget period to achieve the targeted production. Manufacturing overheads include indirect material, indirect labour, and indirect expenses related to the factory. The cost of each and every item of these three components of manufacturing overhead is separately estimated as per the requirements of production.

Administration Overhead Budget

Administration overhead includes the costs of framing policies, directing the organisation and controlling the business operations. Most of the administration expenses are normally unconnected with the volume of activity, therefore, experience and anticipated changes in conditions are the guides for the preparation of this budget.

Selling and Distribution Overhead Budget

The budget includes all expenses relating to selling, advertising, delivery of goods to customers, etc. The overheads may be determined on the basis of sales targets being allocated to different territories or salesmen etc. Those expenses which generally vary with the sales quantity are estimated on a sales basis, others which are of a fixed nature, are estimated on the basis of past experience and anticipated changes. The responsibility for the preparation of this budget lies with the executives of the sales departments.

Illustration 05

Prepare a Sales Overheads Budget for the quarter ending 31st March, 2005 from the estimates given below:

	Rs.
Advertisement	12,500
Salaries of sales department	25,000
Expenses of sales department	7,500
Counter salesmen salaries and allowances	30,000

Commission to counter salesmen is payable at 1% of sales executed by them.

Travelling salesman are entitled to a commission at 10% on sales effected through them and a further 5% towards expenses.

(Rs.)

Sales Territories	Sales at Counters	Sales by Travelling salesmen	Total estimated sales
A	4,00,000	50,000	4,50,000
B	6,00,000	75,000	6,75,000
C	7,00,000	1,00,000	8,00,000

Solution

Sales Overheads Budget
For the period ended March 31, 2005

		Estimated Sales in Territories		
		A	B	C
		Rs.	Rs.	Rs.
		4,50,000	6,75,000	8,00,000
Fixed Overheads:				
Advertisement		12,500	12,500	12,500
Salaries of Sales Department		25,000	25,000	25,000
Expenses of Sales Department		7,500	7,500	7,500
Counter Salesmen's Salaries and allowances		30,000	30,000	30,000
	(a)	75,000	75,000	75,000
Variable Overheads:				
Counter salesmen commission @ 1% on sales		4,000	6,000	7,000
Traveling salesmen commission @ 10%		5,000	7,500	10,000
Expenses @ 5% on Sales by Travelling Salesmen		2,500	3,750	5,000
	(b)	11,500	17,250	22,000
Total Sales Overheads (a) + (b)		86,500	92,250	97,000

14.10 CAPITAL EXPENDITURE BUDGET

The budget is the plan of the proposed outlay on fixed assets such as land, buildings, plant and machinery. The budget is prepared after taking into account the available productive capacities, probable reallocation of existing assets and possible improvement in production techniques etc.

Capital expenditure budget serves the following purposes:

i) It facilitates long-term planning and policy-making.

ii) It facilitates old machinery by latest machinery or to change the methods of production for reducing costs.

iii) It helps in the estimates of capital requirement after taking into account the disposable value of old assets.

iv) It helps in the preparation of cash budget and also assessing the capital cost of improving working conditions or adopting safety measures, etc.

14.11 CASH BUDGET

A Cash Budget is a summary statement of the firms' expected cash inflows and outflows over a projected time period. In other words, a cash budget involves a projection of future cash receipts and cash disbursements over various time intervals.

While preparing cash budget seasonal factors must be taken into account and in practice cash budget is prepared on a monthly basis. The availability of other budgets is tested in terms of cash availability. Cash budget is also called a cash flow statement which indicates cash inflow and cash outflows. It is generally prepared for a maximum period of one year.

A cash budget helps the management in (i) determining the future cash needs of the firm, (ii) planning for financing of the needs; (iii) exercising control over cash and liquidity of the firm.

The overall objective of a cash budget is to enable the firm to meet all its commitments in time and at the same time prevent accumulations of unnecessary large balances.

Methods of Preparing Cash Budgets

There are basically three methods for preparing cash budgets.

1) Receipts and Payments Method

2) Adjusted Profit and Loss Account Method

3) Balance Sheet Method

Illustration 06

A company newly starting manufacturing operations on 1st January 2003 has made adequate arrangements for funds required for fixed assets. It wants you to prepare an estimate of funds required as working capital. It is to be remembered that:

a) In the first month there will be no sale, in the subsequent month sale will be 25%

cash and 75% credit. Customers will be allowed one month credit.

b) Payments for purchase of raw materials will be made on a one month credit basis. c) Wages will be paid fortnightly on the 22nd and 7th of each month.

d) Other expenses will be paid one month in arrear except that 5% of selling expenses are to be paid immediately on sale being effected. The estimated sales and expenses for the first six months, spread evenly over the period subject to (a) above are as under:

	Rs.		Rs.
Sales	3,60,000	Administrative Expenses	54,000
Material Consumed	1,50,000	Selling Expenses	42,000
Wages	60,000	Depreciation on fixed assets	50,000
Manufacturing Exp.	48,000		

The article produced is subject to excise duty equal to 10% of the selling price. The duty is payable on March 31, June 30, September 30, and December 31 for sales upto

February 28, May 31, August 31 and November 30 respectively. Prepare Cash Budget for each of the six months indicating the requirement of working capital.

Cash Budget

for the six months ended on June 30, 2003

Particulars	January Rs.	February Rs.	March Rs.	April Rs.	May Rs.	June Rs.
Receipts:						
Opening Balance	-	(–) 7,500	(–) 45,000	(–) 39,200	(–) 26,200	(–) 13,200
Cash Sales	-	18,000	18,000	18,000	18,000	18,000
Receipts from customers	-	-	54,000	54,000	54,000	54,000
Cash Available (A)	-	**10,500**	**27,000**	**32,800**	**45,800**	**58,800**
Payments:						
Wages	7,500	10,000	10,000	10,000	10,000	10,000
Materials	-	25,000	25,000	25,000	25,000	25,000
Manufacturing Exp.	-	8,000	8,000	8,000	8,000	8,000
Administrative Exp.	-	9,000	9,000	9,000	9,000	9,000
Selling Exp.	-	3,500	7,000	7,000	7,000	7,000
Excise Duty	-	-	7,200	-	-	21,600
Total Payments (B)	**7,500**	**55,500**	**66,200**	**59,000**	**59,000**	**80,600**
Closing Balance (A–B)	**(–) 7,500**	**(–) 45,000**	**(–) 39,200**	**(–) 26,200**	**(–) 13,200**	**(–) 21,800**

14.12 MASTER BUDGET

Master Budget is a combination of all other budgets prepared for a specific period. It shows the overall budget plan. All the budgets are coordinated into one harmonious unit. According to Rowland and William H. Harr, "Master Budget is a summary of the budget schedules in capsule form made for the purpose of presenting in one report the highlights of the budget forecast." Thus, the Master Budget sets out the plan of operations for all departments in considerable detail for the budget period. The budget may take the form of a Profit and Loss Account and a Balance Sheet as at the end of the budget period. The budget generally contains details regarding sales (net), production costs, cash position, and key account balances like debtors, fixed assets, bills payable, etc. It also shows the gross and the net profits and the important accounting ratios. It is prepared by the Budget Officer and it requires the approval of the Budget Committee before it is put into operation. If approved, it is submitted to the Board of Directors for final approval. The Board may make certain alterations if necessary before it is finally approved.

Illustration 07

A Glass Manufacturing Company requires you to calculate and present the budget for the next year from the following information.

Sales:

Toughened glass	Rs. 3,00,000
Bent toughened glass	Rs. 5,00,000
Direct Material Cost	60% of Sales
Direct Wages	20 Workers @ Rs. 150 per month
Stores and spares	2½ % on Sales
Depreciation on Machinery	Rs. 12,600
Light and Power	Rs. 5,000

Factory Overhead:

Indirect Labour:

Works Manager Rs. 500 per month

Foreman Rs. 400 per month

Repairs and maintenance 10% on direct wages

Administration, selling and distribution expenses Rs. 14,000 per year.

Solution

Master Budget

for the period ending on .....

	Rs.	Rs.	Rs.
Sales (as per Sales Budget)			
Toughened Glass..... units @ Rs	3,00,000		
Bent toughened glass ..... units @ Rs	5,00,000		8,00,000
Less- Cost of Production (as per Cost of Production Budget) :			
Direct Materials (.... units @ Rs.....)	4,80,000		
Direct Wages	36,000		
Prime Cost		5,16,000	
Factory Overhead:			
Variable: Stores and Spares (2½% of Sales)	20,000		
Light and Power	5,000		
Repairs and Maintenance	8,000	33,000	
Fixed : Works Manager's Salary	6,000		
Foreman's Salary	4,800		
Depreciation	12,600		
Sundries	3,600	27,000	
Works Cost			5,76,000
Gross Profit			2,24,000
Less : Administration, Selling and Distribution Overheads			14,000
Net Profit			2,10,000

14.13 ADVANTAGES AND LIMITATIONS OF BUDGETARY CONTROL

The budgetary control helps in fixing goals for the organization as a whole and concerted efforts are made for achieving the objectives laid down in the budget.

The following are the advantages of budgetary control:

1. MAXIMISATION OF PROFIT: The budgetary control aims at profit maximization and in order to do this proper planning and coordination of functions of different departments becomes necessary. Also a proper control system becomes highly necessary in order to put the limited available resources to its best possible use. The budgetary control system extends useful services in this regard

2. COORDINATION: The working of departments is properly coordinated in order to make them work in a concerted manner with a spirit of cooperation. For achieving this objective budget of one department has to be linked up with another department. Here, the budgetary control system is of much help.

3. SPECIFIC AIMS: The plan, policies, objectives, targets and goals etc are decided upon by the top management. All efforts are put together to reach the common goal of the enterprise. Every department has some own objectives to be achieved and accordingly the efforts are being directed to achieve the common objectives.

4. TOOLS FOR MEASURING PERFORMANCES: It is an important tool for measuring performances. The actual performances of the departments are periodically reviewed and compared with the budgeted standards and their deviations, if any, are calculated for initiating remedial action.

5. ECONOMY: By means of budgets and budgetary control the planning of expenditure is made more systematic so as to put the limited available resources to its best possible use with a view to achieving economy in respect of various costs.

6. DETERMINING WEAKNESSES: With the application of the budgetary control technique the weak spots can be pinpointed for taking specific measures for their elimination.

7. CORRECTIVE ACTION: The deficiencies as observed through budgetary control techniques may be taken up for corrective action whenever required.

8. CONSCIOUSNESS: The system of budgetary control makes everyone in the organization conscious of their duties and responsibilities as these are already defined in the budget. Thus everyone becomes aware as to what they actually have to do.

9. REDUCTION OF COST: The purpose of budgetary control is to enable the management to exercise a better and more effective control over cost which ultimately leads to reduction in cost.

10. INTRODUCTION OF INCENTIVE SCHEMES: Budgetary control enables the introduction of various incentive remuneration schemes of wage payment by laying down budgeted limited and standards as to time and volume of work etc.

The following are the limitations of the Budgetary Control System.

1. UNCERTAINTY: The budgets are always prepared for the future and future being uncertain, the budgeted results may not always come to our expectation.

2. BUDGETARY REVISION REQUIRED: Budgets are always prepared in anticipation of certain assumed conditions but such conditions may change requiring revision in the budget. Too much of revision reduces the importance of the budget.

3. DISCOURAGES EFFICIENT PERSONS: Under the system of budgetary control budgeted limits, standards and targets are well defined for everyone. The workers have to fulfill the targets given to them. There may be efficient workers who are capable of going beyond the targets set. Thus budgetary control limits the capabilities and discourages the good and efficient workers.

4. PROBLEM OF COORDINATION: The success of budgetary control depends upon the coordination of all the departments. If such coordination is lacking, the budgetary control system will fail.

5. CONFLICT AMONG DIFFERENT DEPARTMENTS: Budgetary control system leads to conflict of interest amongst the various departments because one department will only think about itself and ignore the interest of the other departments.

6. IT DEPENDS ON THE SUPPORT OF TOP MANAGEMENT: The success of budgetary control depends upon the attitude of the top level management. If they support, the system will operate well and if they do not support the system will fail.

14.14 FLEXIBLE BUDGET

We have already discussed above the concept of Flexible Budget. Let us remember again:

- This is a dynamic budget which is designed to change in accordance with change in the level of activity.
- The budget is prepared in such a way that it presents the budgeted cost for different levels of activity.
- It is considered to be a more realistic and practical budget because any change expected in the level of activity is given due weightage.
- This budget is more useful for those concerns where the level of activity changes from time to time, and
- Where the concern has to operate under conditions of uncertainties.
- The flexible budget facilitates ascertainment of cost of production at various levels of activity, fixation of selling price, preparation of tenders and quotations and profits etc at various changed levels of activity

Illustration 08. The following are budgeted expenses for production of 10,000 units of a product:

	Rs per unit
Direct material	60
Direct labour	30
Variable overheads	25
Fixed overhead (Rs 150,000)	15
Variable expenses(direct)	5
Selling expenses(10% fixed)	15
Administrative expenses	
(Rs 50,000 rigid for all levels of production)	5
Distribution expenses(20% fixed)	5
	160

Prepare a budget for production of 6,000, 7,000 and 8,000 units having distinctly marginal cost and total cost.

Solution: Flexible Budget

	Per Unit	6,000 units	7,000units	8,000Units
	Rs	Rs	Rs	Rs
Direct Material	60	360000	420000	480000
Direct Labour	30	180000	210000	240000
Direct Variable Expenses	5	30000	35000	40000
Variable Overhead:				
Production	25	150000	175000	200000
Selling	13.5	81000	94500	108000
Distribution	4	24000	28000	32000
	137.5	825000	962500	1100000
Fixed Cost:				
Production Overhead		150000	150000	150000
Administrative Overhead		50000	50000	50000
Selling Overhead		15000	15000	15000
Distribution Overhead		10000	10000	10000
		225000	225000	225000
Total Cost:		**1050000**	**1187500**	**1325000**
Cost per unit:		**175**	**169.64**	**165.63**
Solution:				

14.15 ZERO BASE BUDGETING

Earlier we have explained the formulation of different types of budgets. If the approach adopted in the formulation and preparation of budgets is based on current level of operations or activities, including current level of expenditure and revenue, such budgeting is known as traditional budgeting .This type of budgeting process generally assumes that the allocation of financial resources in the past were correct and will continue to hold good for the future as well. In most cases, an addition is made to the current figures of cost to allow for expected (or even unexpected) increases. Consequently, the budget generally takes an upward direction year after year, in spite of generally declining efficiency. Such a system of budgeting cannot be expected to promote operational efficiency. It may, on the other hand, create several problems for top management. Some of these problems are:

- Programmes and activities involving wasteful expenditure are not identified, resulting in avoidable financial and other costs.
- Inefficiencies of a prior year are carried forward in determining subsequent years' levels of performance.
- Managers are not encouraged to identify and evaluate alternative means of accomplishing the same objective.
- Decision-making is irrational in the absence of rigorous analysis of all proposed costs and benefits.
- Managers tend to inflate their budget requests resulting in more demand for funds than their availability. This results in recycling the entire budgeting process.

Thus, the traditional budgeting technique may be quite meaningless in the present context when management must review or re-evaluate every task with a view to utilize the scarce resources in a better manner or to improve performance. The technique of zero base budgeting provides a solution for overcoming the limitations of traditional budgeting by enabling top management to focus on priorities, key areas and alternatives of action throughout the organisation.

The technique of zero base budgeting suggests that an organisation should not only make decisions about the proposed new programmes, but should also review the appropriateness of the existing programmes from time to time. Such a review should particularly be done of such responsibility centers where there is relatively high proportion of discretionary costs. Costs of this type depend on the discretion or policies of the responsibility center or top managers. These costs have no direct relation to volume of activity. Hence, management discretion typically determines the amount budgeted. Some examples are: expenditure on research and development, personnel administration, legal advisory services.

Zero base budgeting, as the term suggests, examines or reviews a programme or function or responsibility from 'scratch'. The reviewer proceeds on the assumption that nothing is to be allowed. The manager proposing the activity has, therefore, to justify that the activity is essential and the various amounts asked for are reasonable taking into account the outputs or results or volume of activity envisaged.. No activity or expense is allowed simply because it was being allowed or done in the past. Thus according to this technique each programme, whether new or existing, must be justified in its entirety each time a new budget is formulated. It involves:

- Dealing with particularly all elements of managers' budget requests
- Critical examination of ongoing activities along with the newly proposed activities
- Providing each manager a range of choice in setting priorities in respect of different activities and in allocating resources.

Process of Zero Base Budgeting

The following steps are involved in Zero base budgeting:

Determining the objectives of budgeting: The objective may be to affect cost reduction in staff overheads or it may be to drop, after careful analysis, projects which do not fit into achievement of the organisations objectives etc.

Deciding on scope of application: The extent to which zero base budgeting is to be introduced has to be decided, i.e. whether it will be introduced in all areas of the organization's activities or only in a few selected areas on a trial basis.

Developing decision units: Decision units for which cost-benefit analysis is proposed have to be developed so as to arrive at decisions whether they should be allowed to continue or to be dropped. Each decision unit, as far as possible, should be independent of other units so that it can be dropped if the cost analysis proves to be unfavorable for it.

Developing decision packages: A decision package for each unit should be developed. While developing a decision package, answers to the following questions would be desirable:

- Is it necessary to perform a particular activity at all? If the answer is in the negative, there is no need to proceed further.
- How much has been the actual cost of the activity and what has been the actual benefit both in tangible as well as intangible forms?
- What should be the estimated cost of the level of activity and the estimated benefit from such activity?
- Should the activity be performed in the way in which it is being performed, and what should be the cost?

- If the project or activity is dropped, can the unit be replaced by an outside agency?

After completing decision packages for each unit, the units are ranked according to the findings of cost-benefit analysis. Essential projects are identified and given the highest ranks. The last stage is that of implementing the decision taken in the light of the study made. It involves the selection and acceptance of those projects which have a positive cost-benefit analysis or which are capable of meeting the objectives of the organisation.

The above analysis shows that zero base budgeting is in a way an extension of the method of cost-benefit analysis to the area of the corporate budgeting.Advantages of

Zero Base Budgeting

Let us summaries the advantages of zero base budgeting:

- It provides the organisation with a systematic way to evaluate different operations and programmes undertaken. It enables management to allocate resources according to priority of the programmes.
- It ensures that each and every programme undertaken by managers is really essential for the organisation, and is being performed in the best possible way.
- It enables the management to approve departmental budgets on the basis of cost-benefit analysis. No arbitrary cuts or increase in budget estimates are made.
- It links budgets with the corporate objectives. Nothing will be allowed simply because it was being done in the past. An activity may be shelved if it does not help in achieving the goals of the enterprises.
- It helps in identifying areas of wasteful expenditure and, if desired, it can also be used for suggesting alternative courses of action.
- It facilitates the introduction and implementation of the system of `management by objectives'. Thus it can be used not only for fulfillment of the objectives of traditional budgeting, but also for a variety of other purposes.

It is contended that zero base budgeting is time consuming. Of course, it is true, but it happens only in the initial stages when decision units have to be identified and decision packages have to be developed or completed. Once this is done, and the methodology is clear, zero base budgeting is likely to take less time than the traditional budgeting. In any case, till such time the organisation is properly acclimatized to the technique of zero base budgeting, it may be done in a way that all responsibility centers are covered at least once in three or four years.

Zero base budgeting as a concept has become quite popular these days. The technique was first used by the U.S. Department of Agriculture in 1962. Texas Instruments, a multinational company, pioneered its use in the private sector. Today, a number of major companies such as Xerox, BASF, International Harvester and Easter Airlines in the United State are using the system.

Some departments of the Government of India have recently introduced zero base budgeting with a view to making the system of budgetary control more effective.

14.16 LET US SUM UP

Budget may be classified on the basis of time, function and flexibility. On the basis of time, budget may be classified as long term budget, short-term budget and current budget. The classification of budget according to functions generally include : Sales budget, production budget, cost of production budget, purchase budget, personnel budget, research budget, capital expenditure budget, cash budget and master budget. Budget can also be classified according to flexibility as a fixed and flexible budget.

14.17 KEY WORDS

- Budget Committee : A group of representatives of various functions in an organisation
- Budget Officer: A person who links up or coordinates the various functions, to

bring them together and coordinate their efforts in the matter of preparation of target figures.

- Budget Manual : A document which sets out standing instructions, the responsibility of the persons engaged in, and the procedures, forms and records relating to the preparation and use of budgets.
- Budget Period: The period for which forecasts can reasonably be made and budgets can be formulated.
- Budget Key Factor: The factor which at a particular time or over a period will

  limit the activities of an undertaking.
- Forecasting : A statement of events likely to occur
- Fixed Budget : A budget prepared on the basis of a standard or a fixed level of activity
- Flexible Budget: A budget designed in a manner so as to give the budgeted cost

  at any level of activity.
- Master Budget: A summary budget incorporating all functional budgets which is finally approved, adopted and employed.

14.18 FURTHER READINGS

- Management Accounting: Sharma & Gupta, Kalyani Publishers, Delhi.
- Management Accounting: Pillai & Bhagawathi, S Chand & Co Ltd. Delhi.
- Management Accounting: Khan & Jain, Tata Mc-graw Hills Ltd. Delhi.
- Edward B. Deakin and Michael W. Maher, Cost Accounting, Richard D. Erwin, inc., Homewood, Illinois.

- Lal Nigam B.M. and Sharma G.L., Advanced Cost Accounting, Himalaya Publishing House, Bombay-4.
- Indira Gandhi National Open University, Study Material MS-4 and MS-43.
- Maheswari, S.N. 1987, Management Accounting and Financial Control, Sultan Chand: New Delhi.

14.19 TERMINAL QUESTIONS

Q 2: Discuss the concept of fixed, flexible and functional budgets.

Q 3: Briefly state the advantages and limitations of budgets and budgetary control.

Q 4: Write notes on fixed budget and flexible budget.

Q 5: What do you mean by operating budgets? Briefly state various operating budgets prepared by an organization.

Q6: ABC Co. wishes to arrange overdraft facilities with its bankers during the period April to June when it will be manufacturing mostly for stock. Prepare a Cash Budget including the extent of bank facilities the company will require at the end of each month for the above period from the following data

a)	Sales	Purchases	Wages
February	1,80,000	1,24,800	12,000
March	1,92,000	1,44,000	14,000
April	1,08,000	2,43,000	11,000
May	1,74,000	2,46,000	10,000
June	1,25,000	2,68,000	15,000

b) 50 per cent of credit sales is realised in the month following the sale and the remaining 50 per cent in the following second month. Creditors are paid in the month following the month of purchase.

c) Cash at bank on the 1st April (estimated) is Rs. 25,000.

Q7: Jammu Manufacturing Company Ltd. is to start production on 1st January 2004. The Prime cost of a unit is expected to be Rs. 400 out of which Rs. 160 is for materials and Rs.240 for labour. In addition, variable expenses per unit are expected to be Rs. 80 and fixed expenses per month Rs.3, 00,000. Payment for materials is to be made in the month following the purchase. One third of sales will be for cash and the rest on credit for settlement in the following month. Expenses are payable in the month in which they are incurred. The selling price is fixed at Rs.800 per unit. The number of units manufactured and sold are expected to be as under:

January	9,000	April	20,000
February	12,000	May	21,000
March	18,000	June	24,000

Draw a cash budget showing requirements of cash from month to month.

Q8: Draw a Material Procurement Budget (Quantitative) from the following information: Estimated sale of a product is 20,000 units. Each unit of the product requires 3 units of material X and 5 units of Material Y.

Estimated opening balance at the commencement of the next year:	
Finished Product	2,500 kgs.
Material X	6,000 units
Material Y	10,000 units
Material on order:	
Material X	3,500 units
Material Y	5,500 units
The desirable closing balances at the end of the next year:	
Finished Product	3,500 units
Material X	7,500 units
Material Y	12,500 units
Material on order:	
Material X	4,000 units
Material Y	5,000 units

Q9:

From the following particulars, prepare a production budget of a manufacturing company for the year ended 31st March, 2003.

Product	Sales Budget (Units)	Estimated Stock (Units) 1-4-2002	31-3-2003
A	75,000	7,000	7,500
B	50,000	2,500	7,250
C	35,000	4,000	4,000

UNIT 15: STANDARD COSTING

Structure

15.1 INTRODUCTION

Standard costing is a very important system of cost control. It is important to determine what a product what a product should cost, and if the actual cost is more that the determined cost, then why it is so. Standard costing aims at eliminating the wastes and increasing efficiency in performances through setting up standards for production expenses and production performance. A standard cost system can provide many useful information's which cannot be given by an actual or absorbing cost system. Under an actual costing system, it will be necessary to revise the absorption rates for fixed overheads at regular intervals according to the variations in the volume of output and cost of a particular job may be different in two periods depending upon the volume of the output by separating the cost of idle facilities because standard costs of fluctuations in volume of output by separating the cost of idle facilities because standard costs have been defined as the normal costs for normal production efficiency at a normal level of output.

15.2 STANDARD COST

The word standard means a criterion or yardstick. Hence, standard cost is a predetermined cost. It is a determination in advance of production, of what should be the cost. When standard costs are used for the purposes of cost-control, the technique is known as the standard costing. the costing terminology of Chartered Institute of Management Accountants, London defines standard cost as follows :

"A predetermined calculation of how much costs should be under specific working conditions. It is built up from an assessment of the value of cost elements and correlates technical specifications and the quantification of materials, labour and other costs to the prices and /or wages rates expected to apply during the period in which the standard cost is intended to be used. Its main purposes are to provide bases for control through variance accounting for the valuation of stock and work and the responsibility for deviations can be placed."

Eric L. Kohler has defined standard cost as follows:

"Standard cost is a forecast or pre-determination of what actual cost should be under projected conditions, serving as a cost control and as a measure of production efficiency or standard of comparison when ultimately aligned against actual cost. It furnishes a medium by

which the effectiveness of current results can be measured and the responsibility for deviations can be placed."

The main points in the above definitions are:

(i) It is pre-determined calculation of what cost ought to be under specific working conditions.
(ii) It is built up by correlating standard quantity (of machine time, labour time and material) and forecast for future market trend for price standards (i.e., prices for material, wage rates and machine cost per hour etc.)
(iii) It provides bases for control through variance accounting.
(iv) It provides based for valuation of stock and work-in-progress and in some cases for fixing selling price.

15.3 STANDARD COSTING

It is the preparation of standard costs and applying them to measure the variations from actual costs and analysing the causes of variations with a view to maintain maximum efficiency in production. It is a technique which uses standards for costs and revenue s for the purpose of control through variance analysis.

From the definition given above, it is clear that the technique of standard costing may comprise:

- Ascertainment of standard costs under each element of costs i.e., material, labour and overhead.
- Measurement of actual costs.
- Comparison of the actual costs with the actual costs to find out the variances.

Standard costing is a technique which is complimentary to the actual costing or historical costing system. Standard costs serve as yardsticks against which actual costs are compared to know the reasons of inefficiencies. Therefore, actual costing system cannot be ignored even if standard costing system is adopted.

The system of standard costing can be **useful** in all types of industries, but it is more commonly used in industries producing standardised product which are repetitive in nature. Thus, standard costing is more widely applied in process and engineering industries and is not suitable for job order industries. Even in jobbing industries where jobs differ from each other, there is a considerable scope for the use of this system of costing. Through the product in such industries might not be of a repetitive and standard nature, still the operations performed for completion of the jobs, would be of a repetitive nature and standard can be laid down for the operations performed. Standard cost of the job can be ascertained by adding up the standard cost of the operation evolved in the job. Comparison of the actual costs and standard cost of the operations will be helpful in the controlling the cost of the operations and therefore, of job cost too.

Distinction Between Historical Costing And Standard Costing

Basis	*Historical Costing*	*Standard Costing*
• Ascertainment of Cost	Costs are ascertained after their incurrence i.e. based on actual costs.	Cost are predetermined.
• Yardstick	It does not provide any yardstick against which efficiency of performance can be measured.	It provides predetermined cost as a yardstick to measure actual performance.
• Availability of Reports	These costs are available too late to correct inefficiencies.	In it reports efficiency of variance helps in taking immediate action to correct the position
• Data of Price Quotation	Under it, costing data is obtained too late for the purpose of price quotations, etc.	In it, price can be quoted on the basis of predetermined costs.
• Cost Control	It cannot be used for cost control.	It is used for cost control.
• Expensive System	It is comparatively an expensive system.	It is not so expensive system.

15.4 STANDARD COSTING AND RELATED AREAS

Standard Costing and Budgetary Control

Both standard costing and budgetary control achieve the same objective of maximum efficiency and cost reduction by establishing predetermined standards, comparing actual performance with predetermined standards and taking corrective measures, where necessary. Thus, although both are useful tools to the management in controlling costs, they differ in the following respects :

1. To be able to established standard costs, some form of budgeting is essential as there is the need to forecast the level of output and prescribed set of working conditions in the periods in which the standard costs are to be used. On the other hand, budgetary control can be prepared on the basis of past figures adjusted to future trends. But to

get the best out of budgetary control, liking of budgetary control with standard costing is recommended.

2. Budgetary control is a management technique in planning and control whereas standard costing is an engineering exercise and based on engineering data.
3. Budgetary control is a financial measure of target and achievement whereas standard costing system a costing techniques.
4. In Budgetary Control analysis is made for each department or section level in standard costing analysis is made for each product.
5. Standards are base on technical assessments whereas budgets are based on past actual adjusted to future trends
6. Budgetary control deals with the operations of a department of business as whole while standard costing is applied to manufacturing of a product, process or processes or providing a service. Thus, budgetary control is extensive whereas standard costing is intensive in its application. For example, budgets are prepared for different functions of the business. i.e., production, sales, purchases, cash etc. Standard costs, on the other hand, are compiled for various elements of cost.
7. Standard are set mainly for production and production expenses whereas budgets are compiled for all items of income and expenditure. Therefore, budgeting is a much broader function than standard costing.
8. Budgets set up maximum limits of expenses above which the actual expenditure should not normally exceed. Standard set up targets which are to be attained by actual performance. Thus, budgetary control lays emphasis on costs not exceeding the budgets and standard costing gives importance to costs approaching the standard costs.
9. Budgets are projection of financial accounts; standard costs are projection of cost accounts because budgetary control adopts a more general approach of giving service to the management than does standard costing. Financial accounting, as we know, is concerned with the overall efficiency of the business whereas cost accounting deals with individual products, ascertaining and controlling their costs. Standard costs aim at efficiency at every point ; so they are projection of cost accounts. On the other hand, budgetary control aims at overall efficiency (i.e., efficiency of a particular function such as sales function, purchase function, production etc.) ; so it is a projection of financial accounts.
10. In budgetary control, variances are not revealed through the accounts but are revealed in total. But in standard costing,, variances are analysed in detail according to their originating causes. Thus, standard costing reveals variances through different accounts.
11. Budgets are anticipated or expected costs meant to be used for forecasting requirements of material, labour, cash etc. Standard costs, on the other hand, do not tell what the costs are expected to be, but rather what the costs should be under specific conditions of production performance and as such cannot be used for the purpose of forecasting.

Both standard costing and budgetary control are complimentary to each other and for maximum efficiency both should be used simultaneously. Both may prove more effective if they are used in conjunction with each other.

Standard Costs and Estimated Costs

Standard costs and estimated costs are predetermined costs, but their objectives are different. Important points of differences between the two are as follows :

1. The object of estimated cost is to have a reasonable assessment of what a cost 'will be' whereas standard cost aims at what a cost 'should be'.
2. Estimated costs are calculated on the basis of past performance adjusted in the light of anticipated changes in the future. Standard costs, on the other hand, are determined on a scientific basis keeping in view certain factors and conditions of efficiency.
3. Estimated costs are for fixing selling prices of products, for taking a decision to manufacture or to buy, for quoting the selling price of a job etc. They do not serve the purpose of cost control. Standard costs, on the other hand, lay emphasis on cost control, set the targets against which actual performance is measured and corrective measures are taken, where necessary.
4. Estimated costs are used by the concerns which adopt historical costing system of ascertaining cost whereas standard costs are used by the concerns which follow standard costing system.
5. Standard costs are used as a regular system of accounts from which variances are found out whereas use of estimated cost is as statistical data only.
6. Standard costs are to be fixed foe each element of cost whereas estimated cost can be for a part of the business and also for a particular purpose.

Standard Costing and Marginal Costing

Standard costing is a system of accounting in which all expenses (fixed and variable) are considered for the determination of standard cost for prescribed set of working conditions. On the other hand, marginal costing is a technique in which only variable expenses are taken to ascertain the marginal cost. Both standard costing and marginal costing are completely independent of each other and may be installed jointly. This system of joint installation may be named as Marginal Standard Costing or Standard Marginal Costing System. Variances are calculated in the same way as in standard costing system with the only difference that volume variances are absent because fixed expenses are charged in totals in each period.

Standard Costing and Standardised Costing

The term 'Standardised Costing' is synonymous to uniform costing. Uniform costing is a system of costing under which several undertakings use the same costing principle and practices. With the help of uniform costing, several common processes of various industrial units can be standardised which will be helpful in improving the performance of inefficient units. Both standard costing and standardised costing.(i.e., uniform costing) can be used for better management of industrial units.

Preliminaries to the Establishment of Standard Cost

Following preliminaries should be gone through before a standard costing system is established :

(1) Establishment of cost centres ; (2) Types of Standard ; and (3) Setting the standards.

1. **Establishment of Cost Centres.** As defined earlier in this book, a cost centre is a location, person or item of equipment for which costs may be ascertained and used for the purpose of cost control. Establishment of cost centre is necessary for fixing responsibilities for unfavourable variances.

2. **Types of Standard.** There are three types of standards :

a) Current Standard. A standard which is related to current conditions and is established for use over a short period of time. this standard may be fixed on the basis of ideal standard or expected standard.

Ideal Standard. This is the standard which can be attained under the most favourable conditions possibly. In other words, this standard is based upon a very high degree of efficiency which is rather impossible to achieve. In this standard , it is assumed that there will be the most desirable conditions of performance and that there will be no wastage of materials or time and no inefficiencies in the manufacturing process. This standard is not of likely to be achieved because ideal conditions of performance will not prevail. It is, therefore, a theoretical standard.

The utility of this standard is that it sets a target which, though not attainable in practice, is always aimed at. The criticism of the standard is that when actual costs are compared with such standard costs, large unfavourable variances are shown and these variances become a permanent features of the concern. The ideal standard will breed frustration among employees because such standard is never to be attained. Nobody will pay serious attention to such standard and setting up of this standard will become a farce.

Expected or Attainable Standard. This is the standard which is anticipated during a future specified budget period. In fixing this type of standard present conditions and circumstances prevailing within a particular industry are taken into consideration. Besides, due weightage is given to the expected changes in the present circumstances and conditions. In setting up this standard, a reasonable allowance is also made for unavoidable (normal) wastages. This standard is, therefore, considered to be more realistic than the ideal standard because this standard is based on realities rather than on the most ideal conditions. Hence, this type of standard is best suited from control point of view because this standard reveals real variances form the attainable performance.

b) Basic Standard. It is a standard which is established for use unaltered over a long period of time. This standard is fixed for long periods so as to help forward planning. Basic standard is established for some base year and is not changed for a long period of time as material prices, labour rates and other expenses change. Deviations of actual costs from basic standards will not serve any practical purpose because basic standards remain unaltered over a long period of time and are not adjusted to current market conditions. Thus, this type of standard is not suitable from cost control point of view. However, variances calculated on the

basis of basic standards will help in studying the trends in manufacturing costs over a long period of time.

Comparison of Current Standard and Basic Standard. Current standards relate to current conditions and operate only for a short period before they are revised when conditions change. On the other hand, basic standards are set for a long period and there is no need for constant revision for such standards. Deviation of actual costs from basic standard costs will not serve any practical purpose because standards are not adjusted to current market conditions. However, such standards will be helpful in studying the trends of variances over a long periods of time which is not possible in case of current standards which go on changing. Current standards will take care of inflationary tendencies because they are adjusted to current market conditions. On the other hand, basic standards are static and do not take care of inflationary tendencies.

C) Normal Standard. This standard is defined as "the average standard which it is anticipated can be attained over a future period of time, preferably long enough to cover one trade cycle". Such standards are established on the basis of average estimated performance over a future period of time (say 5 years) covering one trade cycle. It is difficult to follow normal standards in practice as it is not possible to forecast performances with a reasonable degree of accuracy for a long period of time. That is why, normal standards may not be a useful device for the purpose of cost control.

3. **Development (or Setting or Establishment of) Standard Cost.** Just like a Budget Committee. There should be a Standard Committee which should be entrusted with the work of setting standard costs. This Committee will include General Manager, Purchase Officer, Production Engineer, Production Manager, Sales Manager, Cost and Management Accountant, and other functional heads, if any.

Of all the persons, the cost accountant plays a very important role in setting the standards because he is to supply the necessary costs figures and coordinate the activities of the committee so that standards set are as accurate as possible.

It may be noted that standards set should either be too high nor too law. Nobody will take interest in the standards if these are too high because such standards are not capable of being achieved and employees will always have an opportunity to excuse the failure to reach being achieved and employees will always have an opportunity to excuse the failure to reach such standards. Such standards are not realistic and therefore, cannot be used in inventory valuation, product costing and pricing, planning and control, and capital investment decisions. Low standards, on the other hand, will not induce employees and management to put more efforts because they can be achieved very easily. They defeat the objection the objectives of standard costing and fail to disclose inefficiencies because they can be attained by poor performance. As a general rule, currently attainable standards should be set which can be attained if employees and management become more efficient or put some more efforts. Such standards motivate employees and are most appropriate for performance appraisal, cost control and decision making. According to the national Association of Accountants (U.S.A), "Such standards provide definite goals which employees can usually

be expected to reach and also appear to be fair bases from which to measure deviations for which the employees are held responsible. A standard set at a level which is high yet still attainable with reasonable diligent effort and attentive to the correct methods of doing the job may also be effective for stimulating efficiency".

The success of standard costing depends upon the establishment of correct standards. Thus, every possible care should be taken in the establishment of standards and standards should be established for is element of cost as follows :

a)Direct Material Cost. Standard Material Cost for each product should be predetermined. This will include:

i) Determination of Standard quantity of materials needed for the production.

ii) Determination of Standard price per unit of material.

In ascertaining standard quantity of materials , the standard specification of materials should be planned by the engineering department after consulting the past records. While sitting standards and allowance should be made for the normal wastage of materials. The purpose of determining standard quantities of materials should be achieve maximum economies in material usage. A detailed listing of all material required for a product is made on a standard material specification, the specimen of which may be as follows:

STANDARD MATERIAL SPECIFICATION

No..... Date.....

Description of the product.....

Code No.	Description of the material	Quantity of the material per product	Remarks

Prepared by.....

Checked by.....

The standard prices of material should be determined for the various types of material needed of the production. This is done by the cost and management accountant in collaboration with the purchase officer. Standard price for is item of material is established after carefully studying the market conditions and forecasting the trend of prices for a future period. While sitting standard material price, the cost of purchasing and storekeeping should also be included in the price of materials. The object fixing standard prices of materials is to increase efficiency in the purchasing so that prices of materials may be kept down. Any Department for explanation, so before sitting standards for material prices, it is advisable to see that purchasing functions are efficiently managed. Sitting up of standard prices of materials required is a difficult task because it depends on so many factors beyond anybody's control. Generally standard prices are based on current prices adjusted to expected changes in future.

b) Direct Labour Cost. Determination of standard direct labour cost will include determination of :

i) Standard time . ii) Standard rate.

It becomes necessary to standardise the time to be taken for is category of labour and for each operation involved. Time and motion study will determine how much time is to be allowed for each operation involved. While fixing the standard time, due allowance should be made for fatigue, tool sitting , receiving instructions and normal idle time. Standard time can also be determined on the basis of the average of the past performance. Though this method is simple, it is not scientific. Thus , standard time is established on the basis of time and motion study and this is done in conjunction with the work study engineers. Standard times established according to time and motion study are independent of previous performances. It is good for the development of objectives standards. Standard time can also be sat by taking trial runs for new products. This method is not satisfactory as real conditions are not available in such runs.

The fixation of standard labour rates is not so difficult as the fixation of standard prices of materials is because labour rates are usually pre-established. Standard rates of pay should be established for every category of labour. Labour rates in the past may not be reliable basis for determination of rates if the labour rates are subject fluctuation demand and supply of the labour force. Any expected increase in rates should be considered in the determination of standard rates. Establishment of standard rates of pay do no present any problem in those industries where wage rates have been fixed by contracts, Law, Wages Tribunals and Wages Boards. Fixation of standard rates will depend upon the method of wage payment. Standard rates per hour or per day will be fixed if wages, are paid according to time wages system and when the method of wage payment is piece rate, standard wages per piece will be fixed. Personnel department will help the cost and management accountant in determining standard rates of pay.

Overheads. Broadly speaking over heads are segregated into fixed an variable and standard overhead rate should be determined for fixed as well as variable overhead. Standard fixed overhead rate and standard variable overhead rate should also be determined according to the function-wise classification of overheads-manufacturing, administrative and selling and distribution so that exact place of overhead variance may be located and corrective action may be taken. Standard overhead rate is determined keeping in view past experience, present conditions and future trends. Fixation of standard overhead rate involves determination of standard overhead costs, estimation of standard level rate involves determination of standard overhead costs, estimation of standard level of production reduced to a common base such as units of production, direct labour hours, machine hours, etc. And finally determination of standard overhead rate by dividing standard overhead costs by standard level of production. The formula for the calculation of standard rate is :

Standard variable overhead read :

Standard variable overheads for the budget period
Budgeted production in units or budgeted hours for the budget period

Standard fixed overhead rate :

Standard fixed overheads for the budget period
Budgeted production in units or budgeted hours for the Budget period

Standard Hours

Production is generally expressed in physical units such as kilos, tons, gallons, units, dozens etc. But it is difficult to express all the products in one common unit when different types of products which are measured in different units are manufactured in a factory. In such a case, it is essential to have a common unit in which all the products can be expressed in Time factor is common to all the products, and, therefore, production can be expressed in standard hour. A standard hour can be defined as an hour can be defined as an hour which measures the amount of work that should be performed in one hour under standard conditions. For example, if 100 unit of product A can be produced in 10 hours and 200 units of product B can be produced in 25 hours, a standard hour represents 10 units of product A 100 units/ 10 hours and 8 units of production B= 200 units/25 hours. By using the standard hour, it is easy to calculate the volume of output for a period. Thus, if budgeted hours for product A and Product B are 8,000 and 4,000 respectively, budgeted output will be 80,000 (i.e., 8,000 X 10) units of product A and 32,000 (i.e., 4,000 X 8) units of product B. Similarly, actual output can be expressed in terms of standard hours as shown below:

Product	Actual Output (In units) Hours produced	Standard unit per hour	Production in standard hour or standard
A	75,000	10	7,500
B	38,000	8	4,750
			12,250

Standard Costing and Inventory Valuation

Usually inventory is valued in cost accounts on the basis of cost and in case of financial accounts it is valued on the basis of cost or market price, whichever is lower. If inventory is valued at cost, efficiency or inefficiency of one period will be transferred to the next period and will distort the unit cost of the next period. A good principle is that efficiency or inefficiency of a period should not be passed on the next period. Therefore, it is desirable that inventory should not be valued at cost rather it should be valued at normal cost known as standard cost. Hence, a concern following standard costing should value inventory at standard costs. However , standard costs should be suitably amended in the light of variances not connected with efficiency or inefficiency, otherwise, costs will be lower or above that the normal level of cost calculated on the basis of normal performance.

Standard Cost Card or Standard Cost Sheet

It is an important part of the system of standard cost accounting, the standards established for each element of cost (i.e., materials, labour and overhead) for a product are recorded in a

standard cost card or standard cost sheet. Such a card shows for a specified unit of production, the quantity and price of each type of material required, the time and rate of each category of labour, the overhead rate, total standard cost and cost per unit. A standard cost card should be maintained for each product showing total standard cost of output dividing into various elements of cost.

A specimen of Standard Cost Card is given below:

STANDARD COST CARD

No.....

Product..... Date of Setting Standard.....

Element of Cost	Quantity or Hour	Rate Rs.	Standard Cost or Sales Rs.
1. Direct Material			
Material A	40 Unit	20	800
Material B	20 Unit	30	600
	60 Unit	Scrap Value	1,400
Less : Normal Loss (10%)	6 Unit		120
Normal Output	54 Unit	15	1,280
2. Overhead:	50 Hrs.		750
Variable			200
Fixed	10 Hrs.	20	100
Total Cost	10 Hrs.	10	2,330
Profit 20% on Cost			466
Selling Price			2726

Standard Cost per Unit = $\frac{\text{Total Cost}}{\text{Output}} = \frac{\text{Rs.2,330}}{\text{54 units}}$ = Rs.43.31

Standard Selling Price per Unit Rs. 43.31+20% of Rs. 43.31 = Rs.51.76

15.5 LET US SUM UP

Standard costing is a technique which uses standard costs and revenues for the purpose of control through variance analysis. Here, standards are performance expectations. Standard costing aims at eliminating waste and increasing efficiency in operation through setting up standards for production costs and production performance. In short, standard costing is a control device and not a separate method of product costing. It can be used with any method of product costing, job costing or process costing. Standard costing requires the historical costing for a comparative analysis which helps set the goals of standard costs. Standard costing is one of the most important tools to control costs. In this method, all costs are predetermined. Such predetermined costs are then compared with the actual costs and the difference between these costs known as variances.

The essence of standard costing is to set objectives and targets to achieve them, to compare the actual costs with these targets. Standard Costing is used to ascertain the standard cost under each element of cost, i.e., materials, labors, overhead. It can eliminate all kinds

of waste. Through the application of this costing it can be ascertained whether or not the activities of production are going on according to the pre-determined plan.

15.6 KEYWORDS

- **Standard Cost:** The estimated cost of a process, resource, or item used in a manufacturing enterprise, entered in an account and compared with the actual cost so that anomalies are readily detectable.

- **Standard Hours:** A standard hour can be defined as an hour can be defined as an hour which measures the amount of work that should be performed in one hour under standard conditions.

15.7 REVIEW QUESTIONS

Q1. Define standard costing. Distinguish between standard costing and the historical costing.

Q2. What is standard cost? What preliminaries should be gone through before a standard costing is established?

Q3. Distinguish between

a) Standard costs and Estimated costs
b) Marginal costing and Standard costing

UNIT 16: VARIANCE ANALYSIS

16.0 LEARNING OBJECTIVES

After going through this unit, you will able to explain

- The meaning of Standard Cost and Standard Costing
- Describe the advantages and limitations of Standard Costing
- Discuss the determination of Standard Cost
- Explain the concept of variance analysis and its various types

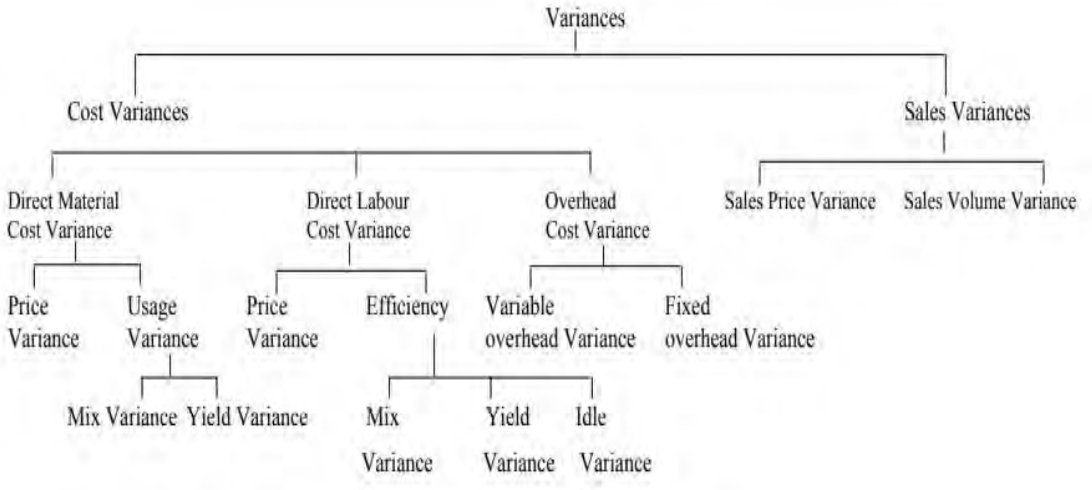
16.1 INTRODUCTION

Variance analysis is a powerful tool in management accounting that helps businesses assess and control the difference between planned or budgeted financial outcomes and actual results. It involves comparing the actual performance against the expected performance to identify the reasons for the variations. This analysis enables management to take corrective actions, make informed decisions, and improve overall organizational efficiency.

16.2 VARIANCE ANALYSIS

After the standard costs have been set, the next step is to ascertain the actual cost of each element and compare them with the standard already set. The difference of actual from the standard is Variance. While setting a standard specific method of production is to be kept in mind. If a different method of production is adopted, it gives rise to a different amount of cost, thereby causing variance, known as method variance. In standard costing, Variance means the difference between a standard cost and the comparable actual cost incurred during a period. Variance analysis is the process of analysing variances by subdividing the total variance in such a way that management can assign responsibility for any off-standard performance. Thus, variance analysis means the measurement of the deviation of actual performance from the desired performance.

Classification of Variances may be classified into two categories viz., cost variances and sales variances. The cost variance may again be subdivided into variances for each element of cost as shown in the following chart:



The sales variances may again be subdivided into sales price variance and sale volume variance. Sub-division of variance of each element of cost gives valuable information to the management in order to control the cost. In this unit you will study Direct Material Cost Variance and Direct Labour Cost Variance only.

Another classification of Variance analysis is

1. **Price Variance and**

2. Volume Variance

Price Variance relates to the prices of materials, rates of labour, expenditure on overheads or selling prices of products. The price variance may be classified as:

- Material Price Variance
- Labour Rate Variance
- Variable Overhead Expenditure Variance
- Fixed Overhead Expenditure Variance
- Sales Price Variance

Volume Variance relates to the quantity of units in terms of raw material consumed, number of hours worked, number of products sold. The volume variance may be divided as follows:

- Material Usage Variance
- Labour Efficiency Variance
- Fixed Overhead Volume Variance

- Sales Volume Variance

The total of Price Variance and Volume Variance is known as the Cost Variance.

16.2.1 DIRECT MATERIAL VARIANCE

Materials constitute the most important element of cost. Therefore, utmost care should be taken in purchasing and using the materials. When deviations occur between the standards specified and the actuals the following variances could be calculated: a. Direct Material Cost Variance, b. Direct Material Price Variance, and c. Direct Material Usage or Quantity Variance.

Let us study the above variances in detail.

a. Direct Material Cost Variance: It is the difference between the standard cost of materials specified for the output achieved, and the actual cost of direct materials consumed. The standard cost of materials is computed by multiplying the standard price with the standard quantity for actual output. The actual cost is computed by multiplying the actual price with the actual quantity used. The Direct Material Variance may be calculated with help of the following formula:

Direct Material Cost Variance = Standard Cost – for actual output Actual Cost

(DMCV)

Where, Standard Cost = Standard Price per unit X Standard Quantity used for actual output

Actual Cost = Actual Price X Actual Quantity used.

Direct material cost variance arises due to change in price of materials or change in the quantity of material used or both. 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 unfavorable or adverse. Let us take an example:

Illustration 01

Calculate Direct Material Cost Variance with the help of the following information:

Standard Output	:	1600 Units
Actual Output	:	2000 Units
Standard Quantity required per unit	:	2 Kg.
Total Quantity actually consumed	:	2400 Kg.
Standard rate per unit	:	Rs. 8 per Kg.
Actual rate per unit	:	Rs. 10 per Kg.

Solution

Direct Material Cost Variance = Standard Cost – Actual Cost

or

(Standard price X standard quantity for actual output) – (Actual price X Actual Quantity Used)

= Rs. 8 X 2 kg X 2000 kg - Rs. 10 X 2400kg

= Rs. 32000 - Rs. 24000

= Rs. 8000 (Favourable)

b. Direct Material Price Variance: Direct Material Price Variance is the difference between actual price and standard price of materials consumed. Material price variance may arise due to the following reasons:

i) Changes in the prices of materials, ii) Uneconomical size of purchase orders, iii) Failure to purchase materials at proper time, iv) Fluctuations in the cost of transportation and carriage of goods, v) Buying efficiency or inefficiency vi) Not availing cash discounts when setting standards, vii) Purchase of substitute material for non-availability of specified material viii) Changes in the duty structure which is forming part of price, ix) Inefficiency of purchase department etc.

Some of the above factors are controllable if proper care is exercised by the management. Generally, the Purchase Manager will be held responsible for material price variance. Material price variance will be calculated as follows:

Direct Material Price Variance = Actual Quantity (Standard Price – Actual Price) = AQ (SP – AP)

If the standard price is more than the actual price, the variance would be favourable and in case the actual price is more than the standard price, it shows adverse variance. Adverse material price variance shows that unfavorable prices were paid for materials consumed and the Purchase Manager would be asked to explain the position.

Illustration 02

Calculate the material price variance with the figures given in illustration 1.

Solution

Direct Material Price Variance = Actual Quantity (Standard Price – Actual Price)

= 2400 (Rs.8– Rs.10)

= 2400 X Rs.-2

= Rs. 4800 (Adverse)

As the actual price is more than the standard price, it shows unfavorable variance.

c. Material Usage (Quantity) Variance: Material Usage Variance is that portion of material cost which arises due to the difference between the standard quantity specified and the actual quantity used. In other words, it is the difference between standard quantity for actual output and actual quantity, multiplied by standard price of material. The formula for material usage variance is as follows:

Material Usage Variance = Standard Price (Standard Quantity for actual output –

Actual Quantity)

MUV = SP (SQ - AQ)

This Variance will be considered favourable when standard quantity is more than actual quantity and vice versa. The production Manager will be held responsible for material usage variance. Material usage variance will arise due to the following reasons:

i) Use of substandard or defective materials, ii) Carelessness in the use of materials, iii) Use of substitute materials, iv) Inefficient production methods, v) Change in designs than those specified, vi) Pilferage of material, vii) Use of non-standard mix, vii) Use of defective plant, ix) In correct processing of materials resulting in wastages, x) Improper inspection and supervision of work men, xi) Incorrect setting of standards etc.

Direct Material Cost Variance is equal to the sum of Direct Material Price Variance and Material Usage Variance. Thus, Direct Material Cost Variance = Material Price Variance + Material Usage Variance

Illustration 03 Gemini Chemical Industries provides the following information from their records: - For making 10 kgs. Of GEMCO, the standard material requirement is

Material	Quantity	Rate per kg.
A	8 units	Rs. 6.00
B	4 units	Rs. 4.00

During April, 2004, 1000 kgs of GEMCO were produced. The actual consumption of material is as under:

Material	Quantity	Rate per kg.
A	750 units	Rs. 7.00
B	500 units	Rs. 5.00

Calculate:

a) Material Cost Variance

b) Material Price Variance

c) Material Usage Variance

Solution:

a) Material Cost Variance = Standard Cost – Actual Cost

= Rs. 6400 – Rs. 7750

= Rs. 1350 (A)

b) Material Price Variance

= (Standard Price – Actual Price) X Actual Quantity

x Material = (Rs. 6 – Rs. 7) 750 = (Rs. 4- Rs. 5) X 500

= Rs. (-1) 750 = Rs.750 (A)

= Rs. 1250 (A)

y Material = (Rs. 4 – Rs. 5) X 500

= Rs. 500 (A)

x + y Material = Rs. 750 (A) + Rs. 500 (A) = Rs. 1250 (A)

c) Material Usage Variance

= (Standard Quantity for actual output – Actual Quantity) X Standard Price

= x Material + y Material

= (800 kg. – 750 kg) Rs. 6 + (400 kg – 500 kg) Rs. 4

= Rs. 300 (F) = Rs. 400 (A)

= Rs. 100 (A)

Verification

Material Cost Variance = Material Price Variance + Material Usage Variance

Rs. 1350 (A) = Rs. 1250 (A) + Rs. 100 (A)

Working:

Material	Standard Cost			Actual Cost		
	Quantity (kg)	Rate (Rs.)	Amount (Rs.)	Quantity (kg)	Rate (Rs.)	Amount (Rs.)
A	800(1000 kg X 8/10)	6	4800	750	7	5250
B	400(1000 kg X 4/10)	4	1600	500	5	2500
			6400			7750

Classification of Material Usage Variance: When more than one type of material is used in producing a product, the total usage variance will be classified into (a) Material mix Variance and (b) Material Yield Variance. Let us study these two variances in detail:

a) Material Mix Variance: Material Mix Variance may be defined as that portion of the material usage variance which is due to the difference between the standard and actual composition of material mixture. It means that the cause of variance is due to a change in the ratio of actual material mix from the standard material mix. The variance results from a variation in the materials mix used in production. Material mix variance may arise in those industries where a number of raw materials are mixed in order to produce a final product. Examples are chemical industries, rubber industries etc.

Material Mix Variance is calculated as follows

Material Mix Variance = (Revised Standard Quantity – Actual Quantity) X Standard

Price

RSQ = Total AQ X Standard Ratio

where,

$$\text{Revised Standard Quantity} = \frac{\text{Standard Quantity for each material}}{\text{Total Standard Quantity for all material}} \times \text{Total of actual Quantities of all material}$$

If the actual quantity is more than the revised standard quantity, an adverse variance will occur and vice versa.

Material mix variance may arise due to the following reasons: i) Price actually paid for materials differs from standard prices ii) Delay in supply of raw materials iii) Non-availability of one or more components of the mix iv) Non-purchase of materials at proper time v) Inefficiency in production department to use proper mix vi) Actual mix may be different from standard mix, etc.

Illustration 04

A product made from raw materials X and Y has the following Standard Mix:

Material	Quantity (Kg.)	Price (Rs.)	Amount (Rs.)
A	2	2.00	4.00
B	8	1.00	8.00
	10		12.00

The actual mix is as follows

Material	Quantity (Kg.)	Price (Rs.)	Amount (Rs.)
A	8	2.00	16.00
B	4	1.25	5.00
	12		21.00

Compute Material Mix Variance.

Solution:

Material Mix Variance

= (Revised Standard Quantity – Actual Quantity) X Standard Price

where, Revised Standard Mix =

RSQ

$$\frac{\text{Total Actual Quantity}}{\text{Total Standard Quantity}} \text{ X Standard Quantity of each material}$$

$$\text{Material A} = \frac{12}{10} \text{ X } 2 = 2.4 \text{ Kg.}$$

$$\text{Material B} = \frac{\text{Total Actual Quantity}}{\text{Total Standard Quantity}} \text{ X Standard Quantity of B}$$

$$= \frac{12}{10} \text{ X } 8 = 9.6 \text{ Kg.}$$

Alternate method for calculating RSQ :

A and B Material Standard Ration = 2 : 8 or ! : 4

A : Total AQ = 12 kg X ¼ = 2.4 kg

B : Total AQ = 12 kg X 4/5 = 9.6 kg

Computation of Material Mix Variance

A: (Revised Standard Mix – Actual Mix) X Standard Price of A

= (2.4kg. – 8kg.) X Rs. 2

= 5.6kg. X Rs.2 = Rs. 11.2 (A)

B: (Revised Standard Mix – Actual Mix) X Standard Price of B

= (9.60kg. – 4kg.) X Rs. 1.00

= 5.60kg. X Rs. 1.00 = Rs. 5.60 (F)

Total Material Mix Variance = Rs. 11.2 (A) + Rs. 5.60(F) = Rs. 5.60 (A)

Illustration 05 The following figures relates to the quantity of material required for the production of a product:

	Standard			Actual		
	Quantity (Kgs)	Price (Rs.)	Amount (Rs.)	Quantity (Kgs)	Price (Rs.)	Amount (Rs.)
A	60	10	600	80	12	960
B	90	20	1800	60	25	1500
	150		2400	140		2460

Compute: a) Material Cost Variance b) Material Price Variance c) Material Usage Variance d) Material Mix Variance

Solution :

a) Material Cost Variance = Standard Cost – Actual Cost

= Rs.2400–2460 = Rs. 60 (A)

b) Material Price Variance = (Standard Price –Actual Price) X Actual Quantity

A : (Rs.10–Rs.12) 80 = Rs.160 (A)

B : (Rs.20–Rs.25) 60 = Rs.300 (A)

Rs. 460(A)

---

c) Material Usage Variance = Standard Price (Std. Quantity – Actual Quantity)

Material A: (60–80) Rs.10 = Rs.200 (A)

Material B: (90–60) Rs.20 = Rs.600 (F)

Rs. 400 (F)

---

d) Material Mix Variance:

(Revised Standard Quantity – Actual Quantity) X Standard Price

Material A: (56–80) X Rs. 10 = Rs. 240 (A)

Material B: (84–60) X Rs. 20 = Rs. 480 (F)

Rs. 240 (F)

$$\text{Material A} = \frac{\text{Revised Standard Quantity of Total Actual Quantity}}{\text{Total Standard Quantity}} \times \text{Standard Quantity of A}$$

$$= \frac{140}{150} \times 60 = 56 \text{ Kg.}$$

$$\text{Material B} = \frac{\text{Total Actual Quantity}}{\text{Total Standard Quantity}} \times \text{Standard Quantity of B}$$

$$= \frac{140}{150} \times 90 = 84 \text{ Kg.}$$

b) Material Yield Variance: Material Yield Variance is calculated on the basis of output while the other variance is calculated on the basis of input. The variance is calculated as the difference between the standard output and the actual output. If the actual output is more than the standard output, then the variance would be favourable and vice versa. The formula for material yield variance is as follows:

Material Yield Variance = (Actual Yield – Standard Yield) Standard output price

Where, standard output price is the total standard material cost per unit of output,

$$\text{Standard Yield} = \frac{\text{Actual Usage of Material}}{\text{Standard Usage per unit of Output}}$$

This variance arises in the case of process industries where loss of material is inevitable in the process of production of the final product. Therefore, in these industries normal loss is to be taken into account while setting standards. But the actual loss may be different from the normal loss during the process of actual production. This gives rise to the variance in the standard yield. The material yield variance may be caused due to the following reasons

- Defective method of operation
- Purchase of substandard quantity of material
- Lack of proper care in handling
- Lack of proper supervision etc.

It should be noted that where several types of materials are used Material Revised Usage Variance (MRUV) and Material Yield Variance (MYV) imply the same thing, though both are computed using different formulae. Numerical results would give the same figure.

Illustration 06

XY Company Ltd. a manufacturer of product P, uses standard cost system gives you the following details for 1000 kgs of product P

Ingredients	Quantity Kg	Price per Kg (Rs.)	Cost (Rs.)
A	800	2.50	2000
B	200	4.00	800
C	200	1.00	200
Input	1200		
Output	1000		

Actual Records Indicate	Consumption in January
A	1,57,000 @ Rs. 2.40
B	38,000 @ Rs. 4.20
C	36,000 kgs @ Rs. 1.10

Actual finished production for the month of January is 2, 00,000 kgs.

Calculate: 1) Material Cost Variance 2) Material Price Variance 3) Material Mix Variance 4) Material Yield Variance 5) Material Usage Variance

Solution:

1. Material Cost Variance = Std. Cost – Actual Cost

A : (16000 kgs X Rs.2.50) – (157000 kgs X Rs.2.40)
= Rs. 400000 – Rs. 376800 = Rs.23200 (F)

B : (40000 kgs X Rs.4) – (38000 kgs X Rs.4.20)
= Rs. 160000 – Rs. 159600 = Rs.400 (F)

C : (40000 kgs X Rs.1) – (36000 kgs X Rs.1.10)
= Rs. 40,000 – Rs. 39600 = Rs.400 (F)

M.C.V. = Rs. 24000(F)

2. Material Price Variance = (Standard Price – Actual Price) X Actual Quantity

Material A = (Rs. 2.50 – Rs. 2.40) X 1,57,000 = Rs. 15,700 (F)

Material B = (Rs. 4.00 – Rs. 4.20) X 38,000 = Rs. 7600 (A)

Material C = (Rs. 1.00 – Rs. 1.10) X 36,000 = Rs. 3600 (A)

Total Material Price Variance Rs. 4500 (F)

---

3. Material Mix Variance: (Revised Standard Mix – Actual Mix) Standard Price

where,

$$\text{Revised Standard Mix} = \frac{\text{Standard Material}}{\text{Total Standard Materials}} \times \text{Total Actual Material}$$

$$\text{A} = \frac{800}{1200} \times 231000 = 1{,}54{,}000 \text{ Kg. (or) } 23100 \text{ kg} \times \frac{4}{6} = 15400 \text{ kg}$$

$$\text{B} = \frac{200}{1200} \times 231000 = 38{,}500 \text{ Kg. (or) } 23100 \text{ kg} \times \frac{1}{6} = 38500 \text{ kgs.}$$

$$\text{C} = \frac{200}{1200} \times 231000 = 38{,}500 \text{ Kg. (or) } 23100 \text{ kg} \times \frac{1}{6} = 23500 \text{ kgs}$$

Material Mix Variance:

Material A = (1,54,000-1,57,000) X Rs.2.50 = Rs.7500 (A)

Material B = (38,500-38,000) X Rs.4.00 = Rs.2000 (F)

Material C = (38,500-36,000) X Rs.1.00 = Rs.2500 (F)

Rs.3000 (A)

---

4. Material Yield Variance = (Standard Yield – Actual Yield) Std. output Price 45

Where,

$$\text{Standard Yield} = \frac{\text{Actual Usage of Material}}{\text{Standard Usage per unit of Output}}$$

$$= \frac{231000 \text{ kgs}}{1.2\text{kg } (1200 \div 1000)} = \frac{231000 \text{ kgs}}{1.2 \text{ kg (i.e., } 1200 \text{ kg} \div 1000 \text{ kgs)}}$$

= 192500 Kg.

(Std. material cost per unit of output = Rs. 3000÷1000 output)

Material Yield Variance = (Actual Yield – Standard Yield) Standard output price

= (200000 – 192500) X Rs. 3

= Rs. 22500 (F)

5. Material Usage Variance – (Standard Quantity – Actual Quantity) Standard Price

Material A = (1,54,000 – 1,57,000) X 2.50	=	7500 (F)
Material B = (4,00,000 – 38,000) X 4.00	=	8000 (F)
Material C = (4,00,000 – 36,000) X 1.00	=	4000 (F)
		19500 (F)

The following formulae may be used for verification of material cost variance:

1. Material Cost Variance = Material Price Variance + Material Usage Variance

(MCV) (MPV + MUV)

Rs. 24000 (F) = Rs. 4500 (F) + Rs.19500 (F)

2. Material Usage Variance = Material Mix Variance + Material Yield Variance

(MUV) (MMV + MYV)

Rs. 19500 (F) = Rs.3000 (A) + Rs.22500 (F)

3. Material Cost Variance = Material Price Variance + Material Mix Variance + Material Yield Variance

(MCV) (MPV + MMV + MYV)

Rs.24000 (F) = Rs.4500 (F) + Rs.3000(A) + Rs.22500 (F)

16.2.2 DIRECT LABOUR VARIANCE

The labour directly engaged in the production of a product is known as direct labour. The wages paid to such labour is known as direct wages. For example, the wages paid to a machine operator is a direct labour cost. Labour variances arise when actual labour costs are different from standard labour cost. The setting up of standard direct labour cost will depend upon the following factors:

a) Methods of Production: Standardized methods of production will be decided by studying motion study.

b) Labour time standards: The time taken by different categories of workers is known as Labour time standard it will be ascertained by using past record performance, time and motion study.

c) Labour rate standards: It refers to the expected wage rate to be paid to different categories of workers. While deciding standard labour rate past wage rates, demand and supply of labour, anticipated changes in wage rates etc. should be taken into account. The methods of wage payment like time rates or piece rates and incentive plans are also to be considered while fixing the standard labour rate.

d) Different grade of labour mix: Standard proportion of different grades of labour mix is another important factor in setting standard labour cost.

Direct labour variance is the difference between the standard direct labour cost specified for the activity achieved and the actual direct labour cost incurred. It is calculated as follows:

Direct Labour Cost Variance = Standard Labour Cost – Actual Labour Cost or = (Std. hours X Std. Rate) – (Actual hours X Actual rate) = (SH X SR) – (AH X AR)

Note: *When the actual output differs from standard output, standard labour cost of actual output is to be worked out and then the following formula is to be applied:* DLCV = Std. cost of actual production – Actual cost

Let us see the following illustration how Direct Labour Cost Variance is calculated:

Illustration 07

From the following information, calculate direct labour cost variance:

Standard wage rate per hour	:	Rs. 5
Standard time set	:	1000 hours
Actual wage rate per hour	:	Rs. 6
Actual time taken	:	980 hours.

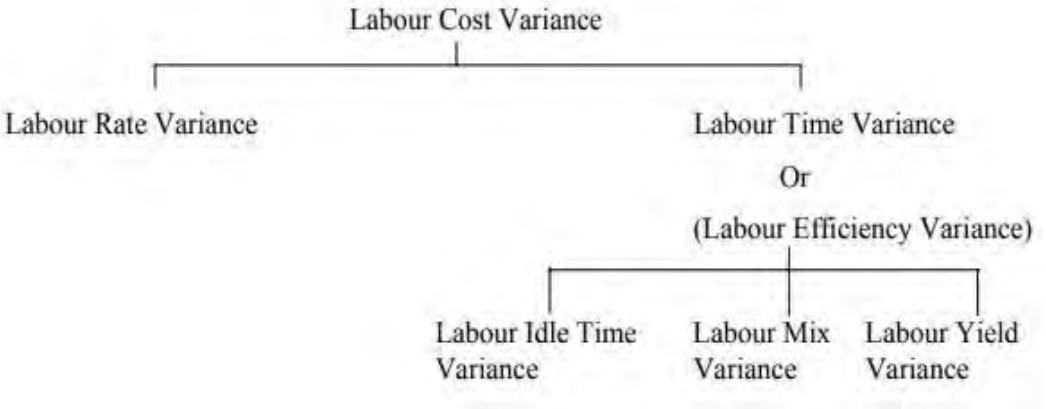
Solution

Direct Labour Cost Variance = (SH X SR) – (AH X AR)

= (1000 X Rs.5) – (980 X Rs.6)

= Rs.5000 – Rs.5880

The above classification may also be shown diagrammatically as follows:



Labour Rate Variance

Labour rate variance is that portion of the usage variance which is due to the difference between standard rate specified and actual rate paid. It is calculated with the help of the following formula: Labour Rate Variance = (Standard Rate – Actual Rate) X Actual Hours Paid LRV = (SR – AR) X AHP

The variance will be favourable if actual rate is less than the standard rate and it will be adverse if actual rate is more than the standard rate. The responsibility for labour rate variance lies with the production center. Labour rate variance is generally uncontrollable.

If the variance is due to the wrong grade of labour, the responsibility lies on the production foreman. Labour rate variance arises due to the following reasons:

i) Change in the basic wage rate of piece-work rate

ii) Employment of one or more workers of different grades than the standard grade iii) Payment of more overtime than fixed earlier

iv) Higher or lower wage rates paid to casual labourers v) Faculty recruitment and placement of workers

vi) New workers not being paid at full wage rates etc.

Labour efficiency variance is the responsibility of Production Manager and is similar to materials usage variance. Both these variances measure the difference in performance.

Labour efficiency variance can be further subdivided into:

a) Labour Idle Time Variance b) Labour Mix Variance

c) Labour Yield Variance

a) Labour Idle Time Variance: Labour Idle time variance is a sub-variance of labour efficiency variance. It is the standard wage payable during the idle hours due to abnormal circumstances like strikes, lockout, break-down or machinery, power cut, shortage or raw materials etc. The abnormal idle time should be separated from the labour efficiency variance as it is due to the reasons beyond the control of workers. Otherwise it will show inefficiency on the part of workers. This variance will always be adverse. It is calculated as follows: Idle Time Variance = Idle Hours X Standard Rate ITV = IH X SR

For example, if the idle time in the data given in Illustration 7, is 20 hours, then the idle time variance would be

Idle Time Variance = Idle Hours X Standard Rate = 20 hours X Rs.5 = Rs.100 (A)

Illustration 08:

The following information is supplied to you:

Standard time for a month	:	4000 Hours
Standard wage rate	:	Rs.2.25 per hour
Number of labourers employed	:	30
Average working days in a month	:	25
No. of hours a worker works per day:		7 hours
Total wage bill in a month	:	Rs. 13125
Idle time due to power failure	:	100 hours

You are required to calculate the following:

a) Labour Cost Variance
b) Labour Rate Variance
c) Labour Efficiency Variance
d) Labour Idle Time Variance

Solution

Standard time = 4000 hours

Standard wage rate = Rs.2.25

Actual time = 30 workers X 25 days X 7 hours

= 5250 hours

$$\text{Actual Wage Rate} = \frac{\text{Total Wage bill}}{\text{Actual time}}$$

$$= \frac{\text{Rs. 13125}}{\text{5250 hrs.}} = \text{Rs. 2.50}$$

a) Labour Cost Variance = Standard Labour Cost – Actual Labour Cost

= (Std. Time X Std. Rate) – (Actual time X Actual Rate)

= (4000 hours X Rs. 2.25) – (5250 hours X Rs. 2.50)

= Rs.9000 – Rs. 13125

= Rs. 4125 (A)

b) Labour Rate Variance = Actual Time (Std. Labour Rate – Actual Labour Rate)

= 5250 hours (Rs.2.25 – Rs.2.50)

= 5250 X 0.25

= Rs. 1312.50 (A)

c) Labour Efficiency Variance = Standard Labour Rate (Std. Time – Actual Time)

= Rs. 2.25 (4000 hours – 5250 hours)

= Rs.2.25 X 1250 hours

= Rs. 2812.50 (A)

d) Labour Idle Time Variance = Idle Time X Standard Rate

= 100 hours X 2.25

= Rs. 225 (A)

b) Labour Mix Variance

It is also known as Gang composition Variance. It is similar to Material Mix variance and is a part of labour efficiency variance. Labour mix variance arises only when two or more different types of workers are employed and the composition of actual grades of workers differ from the standard composition of workers. The change in the labour composition may be due to shortage of one grade of labour. This variance indicates how much labour cost variance is there due to the change in labour composition. It is calculated with the help of the following formula:

Labour Mix Variance = Standard Cost of Standard Mix – Standard Cost of Actual Mix LMV = SCSM – SCAM, or Labour Mix Variance = (Revised Standard – Actual Hours Worked) X Standard Rate Symbolically, LMV = (RSH – AHW) X SR

Where, RSH = Actual Total Hours Worked X Standard Ratio of Workers

Or

$$\frac{\text{Standard Hours of the grade}}{\text{Total Standard Hours}} \text{ X Total Actual Hours Worked}$$

Where, Actual Hours Worked = Actual hours – Idle Time

If the actual hours taken are less than the revised standard hours, the variance is favourable, and vice versa.

Illustration 09

From the following information, calculate labour mix variance:

Standard	Actual
Grade A 80 workers @ Rs. 5 per hour	100 workers @ Rs.6 per hour
Grade B 120 workers @ Rs.3 per hour	80 workers @ Rs.2 per hour
200	180

Labour Mix Variance = (Revised Standard hours – Actual Hours Paid) X Standard Rate

$$\text{Revised Standard Hour} = \frac{\text{Standard Hours of the grade}}{\text{Total Standard Hours}} \times \text{Total Actual Hours Worked}$$

$$\text{RSH for Grade A} = \frac{80}{200} \times 180 = 72 \text{ hours or } 180 \text{ hrs} \times \frac{2}{5} = 72 \text{ hrs}$$

$$\text{RSH for Grade B} = \frac{120}{200} \times 180 = 108 \text{ hours or } 180 \text{ hrs} \times \frac{3}{5} = 108 \text{ hrs}$$

LMV	=	(RSH – AHP) X SR
Grade A	=	(72 - 100) X Rs.5 = Rs.140 (A)
Grade B	=	(108 – 80) X Rs.3 = Rs. 84 (F)

LMV	=	Rs. 56 (A)

Labour Revised Efficiency Variance (LREV)

This variance arises due to the difference between the total actual hours taken and the total standard hours specified for the actual output. This variance is a sub-variance of labour efficiency variance. It arises when there is a difference between actual hours paid and actual hours worked, there will be revised efficiency variance and idle time variance. The formula for Labour Revised Efficiency Variance is:

LREV = (Standard Hours for Actual output – Revised Standard Hours) X

Where,

$$\text{RSH} = \frac{\text{Standard Hours of the grade}}{\text{Total Standard Hours}} \times \text{Total Actual Hours Paid}$$

Or

Standard Rate = Total Actual Hours Paid X Standard Ratio

c) Labour Yield Variance (LYV)

It is similar to Material Yield Variance. It studies the impact of actual yield on labour cost where output varies from the standard. The formula for LYV is:

Labour Yield Variance = (Actual yield – Standard yield) X Standard labour cost per unit of output

Where,

$$\text{Std. Yield} = \frac{\text{Std. output}}{\text{Total AH}} \text{ X AHW;}$$

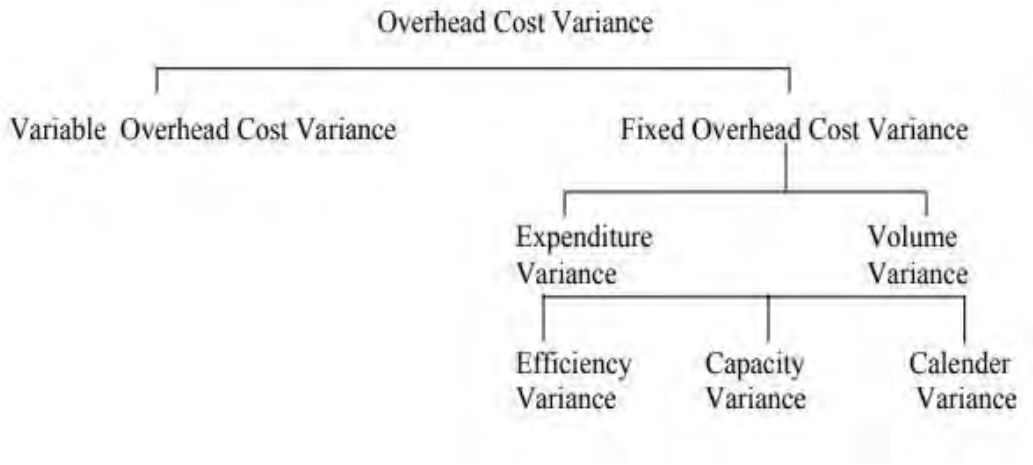
$$\text{Std. labour cost per unit} = \frac{\text{Std. cost}}{\text{Std. Output (units)}}$$

If the standard yield is more than the actual yield the variance will be adverse and vice versa.

16.2.3 OVERHEAD VARIANCES

Overhead variances may be classified into fixed and variable overhead variances and fixed overhead variance can be further analysed according to the courses. In case of variable overheads, it is assured that variable overheads vary directly with production so that any change in expenditure can affect costs. Some authors say that a variance may arise through inefficiency, but as these costs are usually very small per unit of output, it is to be ignored and any variance in variable overhead is attributed to expenditure variance. Considering the fixed overheads cost, the difficulty arises in determining standard overhead rates. This is so because this is dependent on the volume or level of activity. Any change in volume or level of activity causes a change in the overhead rate. Therefore fixing the volume or level of activity is a crucial aspect in determining standard overhead rate. Now if the management decides to change the normal volume or level of activity, without a corresponding change in the fixed amount of overheads, then a change occurs in the overhead rate. Here it may be noted that in the case of material or labour variances, the volume decision does not in any way influence the fixation of standard rate. So to resolve this problem, normally the Budget is used in place of the standard.

Classification of Overhead Variance: The term overhead includes indirect material, indirect labour and indirect expenses. It may relate to factory, office and selling and distribution centers. Overhead variance can be classified as shown in the following diagram:



Overhead cost variance is the difference between standard costs of overhead absorbed in the output achieved and the actual overhead cost. Simply, it is the difference between total standard overheads absorbed and total actual overheads incurred. Therefore, the formula for overhead cost variance is as follows:

Overhead Cost Variance = Total Standard Overheads – Total Actual Overheads

(OHCV)

The overhead cost variance may be divided into variable overhead cost variance and fixed overhead cost variance. Fixed cost variance may be further divided as fixed expenditure variance and fixed volume variance. Fixed volume variance may again be subdivided into efficiency variance, capacity variance and calendar variance. Let us study how these variances are calculated.

1. Variable Overhead Cost Variance (V.OH.C.V): This variance is the difference between the standard variable overhead and the actual variable overhead. The formula is:

Variable Overhead Cost Variance

= Standard Variable overhead for actual output – Actual Variable Overhead

Where,

Standard Variable Overhead

= Standard hours allowed for actual output X Standard Variable Overhead Rate

$$\text{Standard Variable Overhead Rate} = \frac{\text{Standard Variable Overheads}}{\text{Standard Output}}$$

It is stated earlier that there are two basic variances, price and volume. If volume does not affect the cost per unit the only variance to be calculated is price variance known as the variable overhead variance. But when assumed that variable overheads do not move directly with output, the variable overhead variances are to be calculated on similar lines as to fixed overhead variances which you will study later. In this unit, we are assuming that variable overheads do change directly with the output and in fact it is the practice that many firms follow and by a number of writers on the subject.

Variable overhead cost variances arise due to the following reasons: i) Advance payment of overheads ii) Outstanding overheads during the current period iii) Payment of past outstanding overheads during the current period iv) Incurring of abnormal overheads like repairs to machinery due to break down, expenses due to spoilage, defective workmanship or excessive overtime work, etc.

Illustration 10

From the following information, calculate the variable overhead variance::

Standard output	:	400 Units
Actual output	:	500 Units
Standard variable overheads	:	Rs.1800
Actual variable overheads	:	Rs.2000

Solution

Variable Overhead Variance = Standard Variable overhead for actual output – Actual Overhead

Where,

Standard Variable Overheads = Standard hours allowed for actual output X Standard Variable Overhead Rate

$$\text{Standard Variable Overhead Rate} = \frac{\text{Standard Variable Overheads}}{\text{Standard Output}}$$

$$= \frac{\text{Rs.1800}}{\text{400 units}} = \text{Rs.4.50}$$

Variable Overhead Variance = (500 Units X Rs.4.50) – Rs.200

= Rs.2250 – Rs.200 = Rs.250 (F)

Illustration 11

Budgeted production for a month	: 3000 kgs.
Budgeted variable overheads	: Rs.15600
Standard time for one kg. of output	: 20 hours
Actual production in the month	: 250 kgs.
Actual overheads	: Rs.14000
Actual hours	: 4500 hours

Calculate variable overhead variance.

Solution

Variable Overhead Variance

= Standard Variable overhead for actual output – Actual Variable Overhead

$$\text{Standard Variable Overhead Rate} = \frac{\text{Standard Variable Overheads}}{\text{Standard Output}}$$

$$= \frac{\text{Rs.15600}}{6000\text{hrs.} \left(\frac{3000\text{ kgs}}{20\text{hrs}} \times 1\text{ kg} \right)} = \text{Rs.2.60}$$

Variable OH Variance= (4500 hrs X Rs.2.60) – Rs. 14000

= Rs.11700 – Rs.14000

= Rs. 2300 (A)

Fixed Overhead Variances

The treatment of these variances differ from that of variable overhead variables because of the fact that the fixed overheads are incurred anyway and do not vary with change in production levels. These have to be apportioned to production on a basis. Now the standard recovery rate is fixed by considering the budgeted fixed overhead by budgeted or normal volume, regardless of actual activity. It also can be on the basis of management's idea of normal volume, which may considerably differ from actual volume or even actual time taken. So when overheads are actually incurred, they may be over recovered or under-recovered. This over or under recovery is known as the variance. Now this variance can be on the basis of output (in units) or standard time.

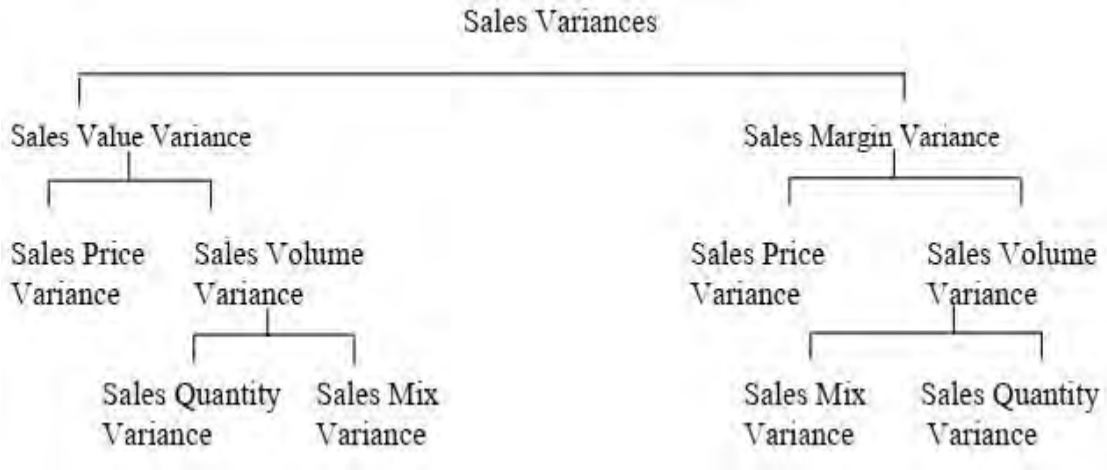
Fixed Overhead Variance It is also called fixed overhead cost variance by some writers, and represents the total fixed overhead variance. Actually it is the difference between the Standard fixed overhead charged on the basis of actual fixed overhead. Symbolically we can express it as:

Fixed Overhead Variance = Standard Fixed Overhead – Actual Fixed Overheads

$$= \left[\begin{matrix}\text{Std. hours for}\\ \text{actual output}\end{matrix} \times \begin{matrix}\text{Std. fixed}\\ \text{O.H. rate}\end{matrix}\right] - \text{Actual Fixed O.H.}$$

16.3 SALES VARIANCE

The Variances so far we learnt relate to cost of goods manufactured viz material, labour and overheads. The purpose of variance analysis is complete unless sales variance is included in the presentation of information to management. Sales Variances are calculated by two methods viz., sales value method (or Turnover Method) and sales margin or profit method. Sales variances arise due to the changes in price and changes in sales volume. A change in value may be due to the change in quantity or a change in sales mix.



Sales variance may be studied under two heads, namely Sales Value Variance and Sales Mix or Profit variances. Again Sales Value Variance is subdivided into Sales Price Variance and Sales Volume Variances. Sales Volume Variance may again be subdivided into Sales Quantity Variance and Sales Mix Variance. Similarly, Sales Margin Variances may be divided into Sales Price Variance and Sales Volume Variance. Sales volume Variance is subdivided into Sales Mix Variance and Sales Quantity Variance. Now, let us study their Sales Variances in detail.

Sales Value Variance

This Variance is also called Sales revenue variance. This is the net variance of sales as a whole. It is the difference between budgeted sales and actual sales. The formula for computing this variance is:

Sales Value Variance = Actual Sales – Budgeted Sales

If actual sales are more than the budgeted sales a favourable variance would be reported and vice versa. This variance is on account of difference in price or volume of sales. It is further subdivided into two variances as – (i) Sales price variance and (ii) Sales volume variance

(i) Sales Price Variance

This variance measures the impact of change in selling price on the turnover as a whole. It is measured by the difference between Standard sales and Actual sales.

The formula is:

Sales Price Variance = Actual Quantity Sold X (Actual Selling Price – Standard Selling Price)

Or Sales Price Variance = Actual Sales – Standard Sales

(ii) Sales Volume Variance

This variance measures the impact of changes in the quantum of products sold. Sales volume variance is the difference between the standard sales and budgeted sales. If the standard sales are more than the budgeted sales, it gives rise to favourable variance and vice versa. The formula is:

Sales Volume Variance = Standard Sales – Budgeted Sales.

Or

= Standard Price X (Budgeted Quantity – Actual Quantity)

Where, Standard Sales = Standard Price X Actual Sales

This variance may arise due to unexpected competition, ineffective advertising, lack of proper supervision, etc. In the case of multi product situations, Sales Volume Variance can be further subdivided into (i) Sales Quantity Variance and (ii) Sales Mix

Variance. These two sub-variance can be calculated as follows:

(i) Sales Quantity Variance

It is the difference between the Budgeted Sales and Revised standard sales. The formula is: Sales Quantity Variance = Revised Standard Sales – Budgeted Sales or = (Revised Standard Quantity – Budgeted Quantity) X Std. Price Where, RSQ = Total actual Quantity X Standard Ratio of Units.

(ii) Sales Mix Variance

This variance arises when the proportion of actual sales mix. It is the difference between Revised Standard Sales and Standard Sales. The formula is: Sales Mix Variance = Actual Sales – Revised Sales or = (Actual Quantity – Revised Standard Quantity) Std. price of each product

Where, RSQ = Total Actual Quantity X Standard Ratio of units

Sales Margins or Profit Variances Method

These can also be called profit variances, as sales margin is nothing but profit. Now, this variance is very essential as management takes key decisions based on profitability. Individually the cost variances or revenue variance (sales variances as based on turnover) cannot convey any clear meaning. But profit variances do so

Sales Margin Variance

This can also be called as 'Overall profit variance'. This represents the difference between the Budgeted Sales margin or Budgeted Profit and Actual Sales Margin or Actual Profit. The formula is:

Sales Margin Variance = Budgeted Sales Margin – Actual Sales Margin

Sales Margin Variance can be subdivided into:

- Sales Price Variance and
- Sales Volume Variance

1. Sales Price Variance (Based as Margins)

This variance arises due to the difference between the Standard Price of quantity of sales and actual price of sales. In other words, it is the difference between Standard Profit and Actual Profit.

Sales Price Variance = Standard Profit – Actual profit or = Actual Quantity

(Standard Profit per unit – Actual Profit per unit)

here, Std. profit = A.Q X Std. profit per unit

If the actual profit is greater than the standard profit, the variance is favourable and vice versa. This variance can arise due to the following reasons:

(i) Rise in price levels net anticipated earlier
(ii)
(iii) Fall in price due to availing discounts and bulk buying

Intense competition not foreseen earlier

2. Sales volume Variance (based on Margins)

This variance arises due to quantity of goods being sold differing from quantity of goods Budgeted to be sold. Now this can arise due to - Intense competition unforeseen earlier or inefficiency of sales personnel symbolically this can be represented as:

Sales Volume Variance = Standard profit per unit (Standard Quantity – Actual Quantity) If the actual quantity is greater than standard quantity, the variance is favourable and vice versa. This variance can be further subdivided in case of multi- product selling units into:-

(i) Sales Quantity variance

(ii) Sales Mix Variances

(i) Sales Quantity Variance

This is the difference between budgeted profit and revised standard profit. Symbolically: Sales Quantity Variance = Standard profit per unit X (Standard quantity

– Revised Standard Quantity)

RSQ = Total AQ X Standard ratio

If RSQ is greater than SQ, the variance is favourable and vice versa.

(ii) Sales Mix Variance

This arises due to the proportion of these items constituting the standard mix different from the actual proportion. It is the difference between Revised Standard Profit and Standard Profit. Symbolically; Sales Mix Variance = Standard Profit per unit X (Revised Standard quantity – Actual quantity) If the actual quantity is more than RSQ, the variance is favourable and vice versa.

Illustration 13

A toy company gives you the following data for a month. You are required to calculate the variance based on profit.

Toy	Budgeted			Actual	
	Quantity	Rate	Cost per unit	Quantity	Rate
A	900	50	45	1000	55
B	650	100	85	700	95
C	1200	75	65	110	78

Solution

Statement of Budged Profit and Actual Profit per unit

Toy	SQ	SP (Rs.)	Total sales (Rs.)	Cost per unit (Rs.)	Total cost unit (Rs.)	Profit per unit (Rs.)	Total profit (Rs.)
A	900	50	45000	45	40500	5	4500
B	650	100	65000	85	55250	15	9750
C	1200	75	90000	65	78000	10	12000
	2750		200000		173750		26250
Actuals							
A	1000	55	55000	45	45000	10	10000
B	700	95	66500	85	59500	10	7000
C	1100	78	85800	65	71500	13	14300
	2800		207300		176000		31300

Revised Standard Quantity (RSQ) = Total Actual Quantity X Std. Ratio

= 2800 X (18:13:24)

$$A = 2800 \times \frac{18}{55} = 916$$

$$B = 2800 \times \frac{13}{55} = 662$$

$$C = 2800 \times \frac{24}{55} = 1222$$

Calculation of Profit Variances

1) Sales Margin Variance = Budgeted Profit – Actual Profit

Toy	Budgeted Profit (Rs.)	Actual Profit (Rs.)	Variance (Rs.)
A	4500	10000	5500 (F)
B	9750	7000	2750(A)
C	12000	14300	2300 (F)
Total	26250	31300	5050 (F)

2) Sales Price Variance = Standard Profit – Actual Profit

Where,

Standard Profit = Actual Quantity X Profit per unit

Toy	Standard Profit (Rs.)	Actual Profit (Rs.)	Variance (Rs.)
A	5000	10000	5500 (F)
B	10500	7000	3500 (A)
C	11000	14300	3300 (F)
Total	26250	31300	4800 (F)

3) Sales Volume Variance =

Standard Profit per unit X (Standard Quantity – Actual Quantity)

Toy	Std. profit X Std. quantity (Rs.)	Actual Quantity (Rs.)	Variance (Rs.)
A	5 X 900	1000	500 (F)
B	15 X 650	700	1000 (F)
C	10 X 1200	1100	1000 (A)
Total			250 (F)

4) Sales Quantity Variance =

Standard profit per unit X (Standard Quantity – Revised Standard Quantity)

Toy	Std. profit X Std. quantity	RSQ	Variance (Rs.)
A	5 X 900 -	916	80 (F)
B	15 X 650 -	662	180 (F)
C	10 X 1200 -	1222	220 (F)
Total			480 (F)

II Sales Mix Variance =

Standard profit per unit X (Revised standard quantity – actual quantity)

Toy	Std. profit (Rs.) X	Revised std. quantity -	Actual quantity	Variance (Rs.)
A	5 X	916	1000	420 (F)
B	15 X	662	700	570 (F)
C	10 X	122	1100	1220 (A)
Total				230 (A)

16.4 CONTROL RATIOS

Now standard costing is used by the management of an organisation as a control technique – variance computed would be given ideal to the management to study the extent of variation from the standards as are set by them. These variances are expressed in monetary terms and do not per se give any idea of trends over a period of time.

Therefore, in order to study trends, Control Ratios are used, which are computed using data used for variance analysis and give an idea to the management of an organisation about the trends over a period at a time or from period to period.

The main Control Ratios are:

1. $$\text{Activity Ratio} = \frac{\text{Standard Hours for Actual Production}}{\text{Standard Hours for Budgeted Production}} \times 100$$

2. $$\text{Calender Ratio} = \frac{\text{Available Working Days}}{\text{Budgeted Working Days}} \times 100$$

$$3.\quad \text{Efficiency Ratio} = \frac{\text{Standard Hours for Actual Output}}{\text{Actual Hours}} \times 100$$

$$4.\quad \text{Standard Capacity Usage Ratio} = \frac{\text{Budgeted Hours}}{\text{Maximum Possible Hours}} \times 100$$

$$5.\quad \text{Capacity Utilisation Ratio} = \frac{\text{Actual Hours Worked}}{\text{Maximum possible hours in Budgeted period}} \times 100$$

16.5 KEYWORDS

- **Variance:** A variance is the difference between a budgeted, planned, or standard cost and the actual amount incurred/sold. Variances can be computed for both costs and revenues.
- **Marginal Cost:** Marginal costing technique differentiate the variable cost from the fixed cost and only variable costs are charged to cost units. Under the marginal costing technique, the fixed overheads are entirely excluded from. The cost of production and provide the same cost per unit up to a certain level of production.
- **Sales Variance:** Sales variance is the difference between actual sales and budget sales. It is used to measure the performance of a sales function, and/or analyze business results to better understand market conditions.
- **Management by Exception:** Management by exception is a style of business management that focuses on identifying and handling cases that deviate from the norm, recommended as best practice by the project management method.

- **Ideal Standard:** An ideal standard is one that could be achieved only under perfect operating conditions. It makes no allowances for events such as normal losses, machine breakdowns or idle time.

16.6 FURTHER READINGS

- Jain & Narang, Management Accounting, Kalyani Publications
- Management Accounting-M Wilson- Cost Accounting-Jena B,Bal S and Das A Himalaya Publishing House
- Narasimhan M.S. , Management Accounting, Cengage Learning
- Cost & Management Accounting, Taxmann Publications
- Arora, M.N. Cost Accounting – Principles and Practice. Vikas Publishing House, New Delhi.
- Maheshwari, S.N. and S.N. Mittal. Cost Accounting: Theory and Problems. Shri Mahavir Book Depot, New Delhi.
- Lal, Jawahar. Advanced Management Accounting Text and Cases. S. Chand & Co., New Delhi.
- Khan, M.Y. and P.K. Jain. Management Accounting. Tata McGraw Hill, Publishing

16.7 MODEL QUESTIONS

Q1: Explain how the variance analysis relating to overheads differ from that relating to material and labour.

Q 2: In what ways can we analyse sales variances. Explain in detail.

Q 3: Write short notes as the following:

i) Variable overhead expenditure variance ii) Fixed overhead volume variance

iii) Fixed overhead calendar variance

iv) Variable overhead efficiency variance v) Sales margin variance

Q 4:

	Standard	Actual
No. of working days	20	22
Man hours per day	8000	8400
Output per man hour in unit	1.0	0.9
Overhead Cost (Rs.)	1,60,000	1,68,000

Calculate Overhead Variances:

a) Overhead Cost Variances

b) Overhead Efficiency Variances

c) Overhead Capacity Variance

d) Overhead Calender Variance

Q 5: In a factory the standard units of production for the year were fixed at 1, 20,000 units and estimated overhead expenditure were estimated to be:

	Rs.
Fixed	12,000
Variable	6,000
Semi-variable	1,800

Actual production during April of the year was 8000 units. Each month has 20 working days. During the months in question there was one statutory holiday. Actual overhead amounted to:

Fixed	1190
Variable	6000
Semi-variable	192

Semi variable charges are considered to include 60% expenses of fixed nature. Find out expenditure, volume, calendar variances.

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